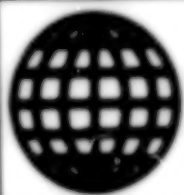


JPRS-EST-92-011  
16 APRIL 1992



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# ***JPRS Report***

# **Science & Technology**

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***Europe***  
***Economic Competitiveness***

# Science & Technology Europe Economic Competitiveness

JPRS-EST-92-011

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16 April 1992

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## SCIENCE & TECHNOLOGY POLICY

### Riesenhuber Calls for Decentralization of EC Research

92P60097 Dusseldorf *HANDELSBLATT* in German  
26 Feb 92 p 4

[Text] According to Federal Minister of Research Heinz Riesenhuber (CDU), small and medium enterprises are not sufficiently supported by the European Community.

In a conversation with the responsible commissioner, Filippo Pandolfi, Riesenhuber urged that subsidy programs be more decentralized in the future than they are now.

The minister of research called for the creation of more offices in the individual EC countries at which companies could apply directly for community funds.

This would eliminate in particular the language problem, which is a constant barrier, especially for smaller companies, Riesenhuber stressed.

In the planning of the Fourth EC Research Framework Program, which will presumably replace the current third program next year, the FRG Government wants to place emphasis on programs which are application-oriented and not specific to individual industrial sectors. The market economy must have priority, Riesenhuber stressed to EC Commissioner Pandolfi. A total of 20 billion German marks [DM] are planned for the Fourth EC Research Framework Program.

The key areas of EC research support should remain the sectors of information science and telecommunications, industrial and material technologies, biotechnologies and raw materials from plants. The minister of research demanded that basic research, which should remain basically reserved to the member states and scientific self-governing bodies, should be limited to exceptional cases in the EC framework program.

The EC should place greater emphasis on climate, environment and ocean research, he said.

Riesenhuber complained that the area of nuclear safety is not sufficiently covered by the current Third Framework Program. A common EC strategy, which also includes reactors with greater safety, is necessary, according to Riesenhuber.

For the period of 1990-1994 the funds for research in reactor safety are about DM400 million, in contrast to DM680 million in the previous five year period. Bonn regards these diminished funds as insufficient in view of the new tasks for ensuring the safety of nuclear reactors in Eastern Europe. The funds for reactor safety must be increased by more than two-thirds, according to Riesenhuber.

### Portuguese Science Policy Targets Explained

92BR0166 Paris *SCIENCES & AVENIR* in French Jan 92  
pp 88-89

[Interview with Jose Mariano Gago, president of the Instrumentation and Experimental Physics Laboratory, by Luisa Costa Gomes: "Let Us Get Rid of Cobwebs." French translation by Paula Martins and Lida dos Santos]

[Text] Jose Mariano Gago is a physicist. He is also a lecturer and researcher, president of the Instrumentation and Experimental Physics Laboratory, and headed the National Agency for Scientific and Technological Research from 1986 to 1989. In his "Manifesto for Science in Portugal," published in 1990, he proposes solutions to make Portuguese research more dynamic.

Gomes: I think we can state dispassionately that science is lagging in Portugal. Is this lag chronic? Do we have any hope?

Gago: The lag has been chronic, but I do not see why it should be permanent. What caused it? I think one of the main factors has been the country's cultural isolation, in addition to the physical isolation of the people. This situation is changing, although not very radically. People travel more and are more aware of what is going on abroad, but on a limited scale. Portugal remains a peripheral country. There are few foreign researchers to be found in Portuguese scientific institutions. I think the situation could change faster with the present-day students, who travel more frequently in Europe, and with secondary schoolteachers, which would go a long way toward internationalizing Portuguese science.

Gomes: When you talk about internationalizing science, one gets the impression that you think chiefly of cooperation with the European countries.

Gago: The increase in EC financial resources in support of intra-European cooperation has no doubt resulted in privileged relations with those countries. As far as real cooperation between Portugal and the rest of the world is concerned, the situation is such that when we examine Portugal's scientific production, we see the United States stand out distinctly, even though France and Germany are at the top of the list.

Gomes: Why should we place Europe ahead of the rest of the world?

Gago: So far, we have been lacking the openness—not only in Portugal, but also in the other countries—needed to sustain cooperation with the rest of the world, in this case the United States and Japan, to the same extent or to the extent required by scientific opportunities. But this problem could become critical in Portugal's case, because if no financial resources are available to encourage scientific cooperation with the United States, such cooperation will not come about or will be due only to the will of particular individuals who have already established their network of personal contacts over the years. But all European countries already realize that a wider opening is necessary.

Gomes: In your "Manifesto for Science in Portugal," you state that it is essential to scientific development to think about demystifying our glorious 15th-century scientific and technical past.

Gago: The first condition for a successful scientific development strategy is to get rid of cobwebs. We cannot spend our time thinking that the present situation is transitory, under pretense that there was an era when miraculously and effortlessly we were geniuses. That would confine us to the

role of beans without a future and that is the Portuguese peril. All the classical myths of "national science" arise from this. Instead of analyzing the electron, we would analyze the "Portuguese electron," the "Portuguese gene," etc. Another of these myths concerns the paradigm of "science for development," which consists of finding a miraculous combination of scientific specializations representing the "national course." However, there is no "national course" all countries can perform well.

**Gomes:** But cannot a structure propitious to "producing" biologists be put in place?

**Gage:** Certainly, but that would not guarantee the existence of good biological research in Portugal. The interesting problems that we will have to resolve in biology over the next 30 years will probably have to do with biophysics, but will basic training in physics be adequate? What we find in countries that have recently experienced scientific development is that they invested equal amounts in all scientific sectors.

**Gomes:** Then, I conclude that the "remedy" for this lag must focus on basic measures and not on opportunistic ones or facades.

**Gage:** I think it is illusory to believe that profound reforms are introduced across the board. It is rather a whole series of discreet and inconspicuous measures requiring much perseverance. They are not the work of a single decisionmaking authority, because in orchestrating scientific development it is important to be able to count on the media, to be in a position to alert public opinion, and to have science museums and more sophisticated publicity.

**Gomes:** What specific problems do Portuguese researchers seem to you to have besides the shortage of money?

**Gage:** A shortage of money which moreover varies greatly depending on sector. But it is not so much the shortage of money but the difference in income compared to the other European countries that keeps foreign researchers from settling in our country. Besides, we are used to functioning with very small teams and that does not allow us to arrive at conclusions in the average time normal in other European countries.

#### [Box]

##### Key Figures on Research

Portuguese researchers must make do with little. This is the principal lesson that emerges from the research figures on this country which is both small—compared to European averages—and at the bottom of the gross domestic product (GDP) hierarchy. Portugal is the caboose and follows Greece and Ireland in terms of the percentage of GDP devoted to research. In absolute value, its research budget, a little less than 2 billion French francs (Fr) are to be contrasted with Germany's Fr132 billion, or even with Belgium's a little over Fr10 billion for the same population level. However, these findings must be qualified. Portugal seems very dynamic, as shown by its remarkable growth—the highest in the EC—in terms of scientific production (up 67 percent since 1982, only Spain has done better). According to an OECD expert, this dynamism comes from

a strong political will, despite serious difficulties in research organization. Seeking to make up for its shortage of resources, Portugal has known how to use a large part of its European appropriations to fund its research. This contribution is said to constitute the main factor of growth in domestic R&D expenditures (DRDE).

##### Key Figures on Research

Domestic R&D expenditure (DRDE) (1989)	FRB.8 billion
DRDE/GDP (1989)	0.50%
DRDE funding (1989)	
State	63.5%
Industry	26.8%
Foreign	2.7%
Other	7.0%
Number of researchers (1989 full-time equivalent)	1,000
Number of researchers per 1,000 active population (1989)	1.1
Share of scientific production in Europe (1989)	0.6%
Patent registration in Europe (1988 percentage of EC total)	0.1% (up 240% since 1982)
Technological balance of payments (1987)	Fr190 million deficit

(1) Share of scientific publications signed by at least one researcher working in a Portuguese laboratory relative to total articles signed by EC researchers.

(2) Balance of exchanges of technological patents and licenses, engineering services, and industrial R&D, exclusive of exchanges of products and merchandise. This is an imperfect indicator of international flows of technology.

##### Dutch Research Institutes Withdraw From JESSI

92BR0175 Rijswijk POLYTECHNISC WEEKBLAD in Dutch 2 Jan 92 p 1

[Article "FOM and STW Withdraw From JESSI"]

[Text] As of 1 January, the organization for Basic Research on Materials (FOM) and the Technical Sciences Foundation (STW) have discontinued their participation in the JESSI [Joint European Submicron Silicon Initiative] research program. They feel that both the Dutch authorities and the European Commission are showing insufficient interest in basic research in the field of chip technology and have failed to appropriate sufficient funds.

##### Italy: High Technology Export Law Approved

92MB0275 Rome AIR PRESS in Italian 3 Feb 92 pp 201-202

[Text] On 31 January, the 10th Senate Commission for Industry, Commerce and Tourism, approved Bill No. 3191—"Regulations for the Control of the Exportation and Transit of High Technology Products," resulting from the combination of Bill No. 5073 "Regulations for the Control of Exportation and Transit of High Technology Products," moved by Christian Democrat representatives, Giuseppe

Zamberletti and Flaminio Piccoli, and Bill No. 3472, "Regulations for the Control of Exportation and Transit of Products and Civil Technology for Military Application," moved by a group of representatives led by the Honorable Giuseppe Crippa of the Social Democratic Party. Bill No. 3191 had previously been approved by the Third Commission of the House (Foreign and Community Affairs) on 23 January.

#### State Security

According to the first of the 16 articles that comprise Bill No. 3191, the exportation and transit of products and technology should, apart from ensuring the nonproliferation of military technology and products, also conform to those principles that form the basis of national foreign policy and be in keeping with the State's fundamental interests regarding security. Article 1.3 of the bill also considers "exportation of technology" to be any exchange of information or data that could be used in violation of any existing law, or of any agreements or international conventions to which Italy adheres. At the same time, Article 1.2 provides for the authorization and control by the state of the export or transit of products or technology, whether under a permanent or temporary permit. "A list of those goods whose export and transit are subject to authorization" shall be prepared, and updated at least every six months, under a decree promulgated by the minister for foreign trade together with the minister for foreign affairs, after consultation with a technical committee nominated by the minister for foreign trade (Article 3.1).

Article 3.2 provides that the list shall be updated:

- a) in accordance with those principles established under Bill No. 185 of 9 July 1990. (Editor's note—This bill regulates the export of armaments);
- b) taking in account the evolution of industrial production and technology;
- c) in accordance with those agreements and international conventions on high technology and nuclear, missile and chemical nonproliferation, to which Italy adheres or is a party to;
- d) in compliance with changes in EC regulations;
- e) in keeping with those provisions already in force in EC countries.

#### The Importance of CTSD

Apart from the preparation and updating of the list, the bill provides, in Article 5.1, for the institution by the Ministry of Foreign Trade of an "advisory committee on the exportation and transit of products and technology." Under Article 5.2 this committee will "advise the minister of foreign trade of its recommendations on authorizations to be granted within 90 days of the date of the request. The committee may (Article 5.3) recommend whether any single authorization is also to be valid for consecutive operations of a similar nature, or whether it is to be limited only to the operation for which the request was made." Article 5.4 states that the advisory committee shall be composed of two

representatives from the Ministry of Foreign Affairs, one of whom shall hold the office of chairman, two representatives from the Ministry of Foreign Trade, one of whom shall hold the office of secretary, and one representative each from the ministries of Defense, Industry, Commerce, and Crafts, Universities and Scientific and Technological Research, Finance, and the Treasury. The committee is to be renewed every three years.

As far as government control and coordination is concerned, great importance has been attributed to CTSD [Interministerial Committee on the Exchange of Materials for Defensive Armaments] as per Article No. 6 of Law No. 185 dated 9 July 1990, whose role it will be to apply the above-mentioned law (Article 4.1). In accordance with Bill No. 3191 (Article 4.2), CTSD is also required to:

- a) formulate and update the list of countries where the exportation of particular categories of products and technologies is restricted;
- b) formulate, according to Law No. 185 dated 9 July 1990, the list of countries that may be authorized by the Ministry of Foreign Trade provided that the importer's facilities are inspected at his approval;
- c) modify the exportation of goods listed as per Article 1.3 of the above-mentioned bill;
- d) examine within 30 days claims submitted by applicants who have been refused an authorization to export products and/or technology subject to Article 1 or when authorization has been granted subject to the imposition of restrictions.

#### Authorization Procedures

Authorization, whether permanent or temporary, for the exportation or transit of products and technology contained in the list, shall be granted (Article 8.1) by the Ministry of Foreign Trade, "after consultation with the advisory committee." Express reasons and motivation for any refusals to grant authorization shall be given. Article 8.2 provides that if no decision has been given within 60 days of an application for authorization being lodged, the applicant may approach the CTSD through the Ministry of Foreign Trade, which shall make a final decision within 30 days.

Article 2 of the Bill (General Authorization) sets out the procedures to be followed for authorization. Article 2.1 specifies: "The granting of authorization for the exportation and transit of products and technology whose value is less than that established by a special decree of the minister for foreign trade and the minister for foreign affairs, to be promulgated within 90 days of this bill coming into force, and in conformity with those agreements and international conventions to which Italy is a party, is subject to simplified procedures, which are to be established under the decree mentioned above." Article 2.2 provides for a general authorization for the exportation and transfer to the United States, Canada, Australia, Japan, Sweden, Norway, Switzerland, Turkey, Finland, and Austria, of certain categories of products and technologies to be defined by a decree of the minister of foreign trade, which decree will also define any



limitations or conditions to be imposed, to be promulgated within 90 days of the entry into force of the bill.

#### "Final Proof"

Article 10 (Subsequent Controls) of the bill provides, under Article 10.1, that "exporters must furnish proof to the minister of foreign trade of the actual arrival in the country of destination of the authorized products that have been dispatched." The form and terminology to be adopted for such proof will be determined by a decree of the minister, to be promulgated within 90 days of the entry into force of this bill. Article 10.2 provides that final proof to be furnished as to the eventual civil use of the products and technology exported in terms of this bill shall be in accordance with those regulations laid down by international organs, and to which Italy is obliged to conform.

Paragraph 1 of Article 12 lays down that: "Any person who engages without due authorization in the export or transit of the products and technologies referred to in Article 1.2 shall be liable to two to six years' imprisonment or a fine of 50 to 500 million lire, unless a more serious crime is involved, while" (12.2) "the goods illegally exported within the meaning of paragraph 1 shall be confiscated."

#### Germany: Riesenhuber Urges EC R&D Reorganization

92MB0281 Bonn DIE WELT in German 12 Feb 92 p 23

[Article by Norbert Lonsau: "A More Streamlined Organization"]

[Text]

Federal Research Minister Heinz Riesenhuber presented a memorandum on European research policy in Bonn yesterday. It sets out the direction that, in the federal government's view, EC research policy ought to take in the future. The timing of this German position paper is no accident. After all, the EC Council will be considering this year the Commission's proposal for the fourth framework program for European research funding, which will probably involve funds amounting to more than 20 billion German marks over a five-year period.

The memorandum advocates focusing EC research programs more sharply than before and setting priorities. This would reduce the risk of research projects being "oversubscribed," Riesenhuber said. If funding programs were not specific enough, a flood of applications would pour in, most of which would have to be turned down. A small- or medium-sized enterprise that had once or twice round taken



So stellt sich Bundesforschungsminister Heinz Riesenhuber die prozentuale Verteilung der EG-Forschungsmittel in der Zukunft vor QUELLE: DIE WELT

#### Breakdown of EC Funding

This is how Federal Research Minister Heinz Riesenhuber sees the percentage breakdown of future EC research funding. Chart: DIE WELT

Key: 1 Research and Development as Proposed in the German Memorandum on European Research Policy 2 Information and communications technologies 3 Industrial and materials technologies 4 Biotechnology, renewable raw materials 5 Climate, environment, the sea 6 Fusion energy 7 Nuclear safety 8 Renewable energy 9 Medicine 10 Mobility, human capital 11 Developing countries 12 Other

the trouble to draw up elaborate applications for funding would then probably give up altogether out of frustration. That could not be what funding policy was about.

A further demand made in the memorandum was that projects receiving EC funding should be first and foremost application-oriented, though still in the precompetitive stage. Priority should be given to projects falling under the category of "preventive research." This would include, for example, medical, environmental, and nuclear safety projects.

Basic research is currently allowed to account for not more than 10 percent of a project in receipt of EC support. Riesenhuber sees no reason for increasing this amount. "Basic research should not be brought within the EC's terms or reference." It could be funded much more effectively at national level.

In this connection, Riesenhuber referred to the apparently different European interpretations placed on the concept termed "subsidiarity," on which all the EC partners had after all agreed. Riesenhuber took it to mean: "Work that can be done at national level should be done at national level."

The memorandum therefore also calls for a decentralization of EC research management. National EC offices in the various countries ought to be direct contact points for researchers. Riesenhuber could, for example, imagine the DFG [German Research Association] taking on this role vis-a-vis the German universities.

Overall, Riesenhuber said that research funding showed "structural deficits" that could be overcome by a more streamlined organization. Why, for example, should it not be possible for the "EC's very fragmented" climate research to be just as well coordinated as European fusion research already was?

#### **France's CNRS, University of Rennes Renew Collaboration Agreement**

92WS01268 Paris AFP SCIENCES in French  
23 Jan 92 p 4

[Article: "University of Rennes-I and CNRS Renew Their Scientific Collaboration"]

[Text] Rennes—The University of Rennes-I and the CNRS [National Scientific Research Center], linked since 1987 by a framework agreement, have renewed 10 joint-project agreements under which the CNRS will provide the university with human resources and financial aid.

Rennes-I stands out among the French universities because of a rate of collaboration with national research organizations approximately 14 percent above the national average. This scientific collaboration involves 23 research teams, 615 members of teaching faculties and researchers, and 659 graduate students. Operating on an annual budget of 52 million francs, the teams collaborating with CNRS have worked on 502 pieces of research in different scientific domains (mathematics, physics, chemistry, and life sciences) since 1987.

The future objective of these agreements is to strengthen the existing units of collaboration, decentralize the teams, and develop technology transfer operations with enterprises.

#### **Max-Planck President on Budget, New Institutes, Sites**

92WS03314 Munich SUEDEUTSCHE ZEITUNG  
in German 30 Jan 92 p 50

[Interview with Professor Dr. Hans Zacher, president of the Max-Planck Society, Munich, by Martin Urban of the SZ. "Future in Berlin"]

[Text]

[Urban] It is becoming too crowded in the Munich residence of the Max-Planck Society. Instead of moving within Munich, shouldn't it simply return to Berlin where it was founded and where most of its biggest names worked: Max Planck, Albert Einstein, Otto Hahn, just to mention a few?

[Zacher] The alternative of moving right away or later does not exist. The question is: Will the Max-Planck Society remain in Munich or will it move to Berlin? If we here in Munich were to get different accommodations, it could only be the "final" accommodations. Of course, it is impossible to talk about forever.

[Urban] But the orientation of the future activity of the Max-Planck Society is in Eastern Germany, where 15 to 20 new Max-Planck institutes are to be created. This is much easier to organize from Berlin than from the edge of the FRG, after all.

[Zacher] Cities in Eastern Germany are easy to reach from Munich as well. Other reasons will play a prominent part in the decision, such as the question of how close a research institution such as the Max-Planck Society should be to politics. Another consideration is the costs of moving. The society's history in connection with Berlin does play a role, of course. The question of Berlin or Munich is controversial within the Max-Planck Society.

[Urban] The top echelon of the Max-Planck Society, at least, would have to be close to politics, since it is quite significantly a matter of political decisions, after all, primarily money. In your 1.3 billion 1992 budget you received 98 million German marks [DM] for work in the former GDR. Is that enough?

[Zacher] Unfortunately, no. Initially I should tell you that last year we established 29 working groups in the new Laender. We took over two branches of institutes that exist here in the west—working groups for plasma physics in Berlin and for extraterrestrial physics in Potsdam—and established a new Max-Planck Institute. In the coming weeks a second institute is to be established.

[Urban] The first institute is the one for microstructure in Halle, which already existed as an academic institute. And the second?

[Zacher] The second is an institute for colloid and interface research, whose groups at present are working in Teltow, Adlershof and Forstberg.

[Urban] And to what extent is there not enough money?



[Zacher] Because we are seeing that the reorganization of the institutes is extraordinarily costly. Let me mention just one example for Halle. We must replace all the power lines in the institute building. The existing installations do not correspond with our norms and could even influence the measurement results.

[Urban] How much more money than you expected to get do you need?

[Zacher] In 1992 DM98.5 million were made available to us, and for 1993 we have reported the need for 187 million. Furthermore, we would urgently need special programs for personnel exchange, for example. We should have the opportunity of sending abroad as many researchers as possible, whom we employ in the new Laender, to stay. After their long isolation they must experience how research is done in western countries. Conversely, we would need opportunities to bring researchers from the West into the new Laender. All of this costs a great deal of money.

[Urban] What has become of the continuing plans? For example, there is the idea of a Max-Planck institute for gravitational research, which is to carry Einstein's name.

[Zacher] There has been no decision about that yet. Several new projects are in the biological-medical sector. In the area of the chemical-physical-technical sector there is only one to be mentioned among the new projects, an institute for non-linear dynamics.

[Urban] Nonlinear dynamics can also be called chaos research. Where will that institute be located?

[Zacher] We have not yet decided on questions of location.

[Urban] And how are things in the humanities?

[Zacher] In the humanities we have a double set of problems. At the moment I would not like to say anything about the seven centers with which we have been entrusted by the scientific council. Otherwise I would disturb a discussion process which is close to being concluded. But we also have our own plans for new Max-Planck institutes, one for economic research, for which preparations have already largely been completed, and one for European Integration Research. Other than that, we have the task of providing recommendations for the future of scholarly centers outside the Max-Planck Society as well. I assume that by summer we will have gotten so far as to giving such recommendations.

#### German Applied Systems Engineering Institute Founded

92MB0112 Bonn *TECHNOLOGIE-NACHRICHTEN*  
MANAGEMENT-INFORMATIONEN in German  
18 Feb 92 pp 12-13

[Text] ISYTEC [Institute of Applied Systems Engineering] is the name of a new research institute in the University of Bremen's technology park, which is funded jointly by the Hanseatic city and partners from industry.

The shareholders of the institute, which is run in the form of a GmbH [limited liability company], include not only the Free Hanseatic City of Bremen but also Bremer Vulkan AG, Daimler-Benz AG, Atlas Elektronik GmbH, BLG [Bremen

Warehouse Corporation] AG, DST [German Systems Engineering] GmbH, LSW Mechanical Engineering Works GmbH, OAS [O.A. Schwimmbeck] GmbH, and OHB [Orbital and Hydrotechnology] GmbH.

These very diverse companies have a common interest in the research topic of the new institute. The characteristic feature of systems engineering is that it solves problems from a viewpoint that takes account of the whole of the system concerned. Consideration is given not only to purely technical problems but also to economic, sociological, and ecological aspects. Originally developed for the aerospace sector, systems engineering is in increasing demand in other fields too, for example in automobile production, shipbuilding, transportation, and environmental engineering.

In addition to work commissioned by customers—primarily its own shareholders in the first instance—ISYTEC is seeking nationally and internationally funded joint research projects with industrial partners. As a complement to this work, ISYTEC will also hold scientific seminars on systems engineering. There are currently six scientists working under the direction of Dr Uwe Kirchhoff, and this number is to double in the foreseeable future. Further expansion will depend on the institute's economic growth, as it is to be self-financing in the long term.

Further information can be obtained from ISYTEC. Tel 0421/22092-0, Fax 0421/22092-10.

#### France: ONERA, Air Force Form Research Lab

92WS0154B Paris *AFP SCIENCES in French*  
6 Feb 92 p 13

[Unattributed article "Creation of a Research Laboratory at the Air Force School"]

[Text] Paris—The Air Force School in Salon-de-Provence will soon have a research laboratory, as a result of an agreement signed on location on 6 February by Air Force Chief of Staff, General Lanata, and ONERA President, Mr Jacques Benichou.

By the year 2000, some 50 engineers will be carrying out their teaching and research activities in the fields of flight mechanics, optronics, airborne radars, and man-machine interfaces, the press department of the Air Force (SIRPA-Air) indicated. The creation of the laboratory "confirms the Air Force School's determination to follow most closely the progress of aerospace technologies."

#### Sweden Opens Research Office in Brussels

92WS0157B Stockholm NY *TEKNIK in Swedish* 30 Jan 92 p 4

[Article by Hans Dahlquist]

[Text] The Technical Science Research Council together with the other five research councils will open an office in Brussels. The aim is to expand our knowledge of EC research. The research office in Brussels should be open by summer. The position as head of the office is already being advertised.

"This is especially urgent because Sweden is not a member of the EC. We do not have the same access to information

that member countries do," said Mats Olof Ottosson of the Natural Science Research Council who is also chairman of the working group appointed by the six research councils to make preparations for the Brussels office.

The office will acquire knowledge about the EC's research and educational programs, establish contacts, pass on information to Sweden and assist and represent the Swedish research councils.

The annual cost of 2 million kronor will be divided equally among the six research councils.

In view of the increased opportunities the office can create for Swedish participation in European research programs this money will be well spent, in Ottosson's opinion.

The government, which has been kept up to date on the plans, is positive about the research office in Brussels.

A final decision has not yet been made on the purely practical aspects of carrying out the work in Brussels. Discussions on cooperation are being held with the British, French and German research council offices.

The six Swedish research councils cover technical science, natural science, social science and the humanities, forestry and agriculture and medical research.

The Coordinating Board of the Swedish Research Councils is a seventh council but the government wants to abolish it.

The main job of the research councils is to distribute funds to Swedish researchers and projects.

#### France: Defense, Research Ministers Outline Goals

92WS0376A Paris AFP SCIENCES in French 13 Feb 92  
pp 2, 3

[Article: "France: Civilian and Military Researchers Share Same Goals"]

[Text] Paris—Scientific research and discovery, the understanding of phenomena, and their applications in every field are the same for both civilian and military researchers. This was the gist of a statement made on 12 February by Defense Minister Pierre Joxe and Research Minister Hubert Curien.

In the Council of Ministers, the two ministers submitted a joint statement on information exchange between civilian and military research. Exchanges are numerous, constant, close, and often widely ignored, but they go far beyond the fields of space and nuclear science, which are commonly thought to be the only areas affected. Research in electronics, robotics, moving bodies, informatics, medicine, lasers, composite materials, scientific calculations, etc. have immediate or easily adaptable applications whether they come from civilian or military laboratories.

Also, the two ministers noted that of the \$2 billion French francs [Fr] the state spent on research and development in 1991, Fr48 billion was in the civilian budget compared to Fr34 billion in defense. For 1992, the civilian share has been increased to Fr51 billion, while the military portion is more or less unchanged. Nevertheless, in a rapidly changing world one must prepare against adverse eventualities. Therefore, "in the adaptation of our defense apparatus currently under

way, preparations for the future reflect the priority given to defense-related research," the Council of Ministers communiqué notes.

The already significant and confirmed ties between the Defense Ministry and the scientific community are growing, as are exchanges of information and equipment-sharing. Examples of dual use include the "Connection Machine," a huge hyper-parallel computer located in the Central Technical Arms Depot (ETCA) at Arcueil used for simulation studies and decision assistance, and the big Crays used for research on materials and ultra-stable lasers. But the same also holds in research on fiber optics, artificial intelligence, composite materials, and ceramics, all of which are "civilian" and "military" at various times.

At a time when the nation needs advanced observation and intelligence-gathering instruments (the Spot and Helios satellites), the General Delegation for Armaments (DGA) and the National Center for Space Studies (CNES) are going to coordinate their research in the fields of space and hypersonic propulsion.

"All branches of science are involved," said Mr. Curien. "Basic research is the same whether the goal is a microwave oven, 'hardened' chips for military satellites, or nuclear warheads." "The linkage between civilian and military scientific research is a concern of policy in both defense and research," said Mr. Joxe. "We must lay the groundwork today for what we will need 10 or 40 years ahead. Some of our airplanes have been flying for 20 years. We are building ships that will still be in operation 30 years from now. Everything depends on our scientific capacity and its further improvement."

Among the decisions announced on 12 February, Fr1.3 billion for strengthening research and training facilities located on the Palaiseau plateau near the Ecole Polytechnique and the National Higher School for Advanced Technology (ENSTA), doubling the number of conscripts in the "scientific contingent," and expanding the regional centers where civilian, military and industrial laboratories work together.

Finally, according to Messrs. Curien and Joxe, scientific and technological cooperation with the member states of the CTS is needed to expand ties with their research centers and industries. Government financial support is envisioned for this, but "France is not about to promote a brain drain to these countries," Mr. Joxe indicated. "France does not have to 'walk the streets' to get scientific work from the Soviets. But there are possibilities of work there, if only in the field of dismantling strategic nuclear missiles."

Here is the text of the communiqué from the Council of Ministers.

"In 1991, the state devoted Fr\$2 billion to research and development, of which Fr48 billion was under the civilian research and development budget and Fr34 billion under military research and development. In the adaptation of our defense apparatus currently under way, preparations for the future reflect the priority given to defense-related research.

"There are already significant ties between the Ministry of Defense and the scientific community. The defense minister is assisted by a defense scientific council. The science and defense colleagues hold each year promote exchange of information between scientists, industrialists and the military."

"The Ministry of Defense calls on the scientific and technological expertise of civilian organizations. In the space domain, for example, an agreement has been concluded between the DGA and the CNES to coordinate their research activities. A program of research on hypersonic propulsion has been launched by the Defense Ministry, the Ministry of Research and Technology, and the CNES."

"Special attention will be given to increasing the defense spin-offs of civilian research in high-priority fields including electronic components, materials, robotics and production technologies."

"Expansion of regional centers, like Toulouse and Bordeaux, where laboratories, teaching establishments, and industries collaborate to the benefit of both military and civilian research, will be promoted. The research and training facilities on the Palaiseau plateau near the Ecole Polytechnique and the ENSTA will be strengthened over the coming years, thanks to Fr 1.3 billion in investments by the Ministry of Defense."

"International cooperation will be encouraged in these domains. In particular, the government will provide financial support for scientific and technological cooperation with members of the CIS in order to promote partnership arrangements with the research centers and industries of these states."

#### Sweden: Drop in Research Spending, Government Support

##### Drop in Research Seen

6/05/92,24 Stockholm NY TEKNIK in Swedish (15 Jan 92, p. 4)

[Article by Jan Melin: "Sweden No Longer First in Research Spending"—first three paragraphs are NY TEKNIK introduction]

[Text] Sweden is no longer in the lead with regard to investment in research and development.

Instead Japan is now the country that spends the largest percentage of its total resources on R&D.

Sweden has slipped to fourth place.

In 1987 Sweden invested more of its resources in research and development than any other country in the world.

Three percent of the gross national product (GNP) went to research.

The countries just behind Sweden at the top of the list were Switzerland, the United States, Japan and West Germany. They all spent around 2.8 percent of their GNP on research and development.

Now Japan has taken the lead. This is shown by statistics from the OECD and SCB [Central Bureau of Statistics].

These latest available figures are from 1989.

There is nothing to indicate that Sweden has improved its investments since then. According to preliminary estimates for 1990, Swedish R&D investment continued to decline after 1989.

In 1987, when Sweden was the world leader, R&D expenditures totaled approximately 62 billion kroner, figured in 1991 kroner.

In 1991 research investment had dropped to around 46 billion kroner.

In the first part of the 1980's, when R&D investment rose steadily from year to year, business firms were primarily responsible for the growth. In a mini-survey NY TEKNIK conducted in the fall, more big Swedish firms claimed that they had not cut down on R&D. But that was in relation to sales. As these have dropped for most companies in recent years, an unchanged R&D percentage really means a reduction in absolute figures, as shown by the S.B. estimate.

In 1991 business firms, especially manufacturing industries, accounted for 61 percent of all research and development activity. Universities and technical colleges were responsible for 17 percent while the public sector's share was around 4 percent.

When the reduction in Swedish research activity started in 1987, 67 percent came from business firms and 29 percent from colleges. Thus the universities' R&D share increased as that of business firms declined.

The largest part of private firms' R&D, around 85 percent, involves development work, in other words research aimed at producing new products, processes and systems.

At universities and colleges, on the other hand, pure basic research and applied research account for a corresponding 85 percent.

##### State Technology Support Reduced

6/05/92,28 Stockholm NY TEKNIK in Swedish (15 Jan 92, p. 7)

[Article by Mats Almström: "Reduced State Support for Technical Development"—first two paragraphs are NY TEKNIK introduction]

[Text] The government is cutting state support for technical development. The Business and Technical Development Agency's funds will be cut by 140 million kroner in this year's budget.

National research will lose 55 million kroner, which will go to EU research instead.

The chairman of the Business and Technical Development Agency, Nordin, is commenting:

Back in November the government's economic policy proposal indicated that the development program for small companies would be cut by 90 million kroner.

The technological development funds for the new technology and new products programs would also be affected. And now it has been announced, 70 million will be cut. This adds up to a total cut of 140 million kroner.

The Ministry of Industry is hoping that industry will step in and invest instead.

Nutek is the result of the merger of three state boards: the National Board for Technical Development (STU), the National Industrial Board (SNDI) and the National Energy Board (STEV).

Björn Engren, undersecretary in the Ministry of Industry and former head of STU, feels Nutek must find its platform if it is to avoid further cuts.

"I think it is strange that the merger was implemented when three politically strong opposition parties were opposed to it. The government cannot just sit back in silence now when the consequences for Nutek are turning out to be extremely negative," said Engren.

The cuts are entirely in line with the industry minister's perception that the old STU is the root of the new agency.

"STU is the central and important activity," Per Westerberg told NY TEKNIK last fall (1991/49).

Nutek Sundberg, Nutek's chief, hopes there will be no more cuts as the agency needs to work in peace.

"This means a reduction of our ability to help companies. But I know there is a budget deficit of 70 billion kroner and everyone must do their bit," said Sundberg.

Approximately 20 people will receive dismissal notices as a result of the cuts, most of them in units that deal with small business matters.

"We will have to trim our sails in the future and we will be unable to provide the same level of assistance and service that people in this sector are accustomed to," said Sundberg.

The budget increases support for EC research by 81 million kroner, bringing it up to 217 million. Part of this, some previously 28 million kroner, is new money. And part comes from reallocating national research funds to EC research.

The money has been taken from Nutek, its program in materials technology, the Swedish Council for Applied Research (TFR), the energy research program and building research.

The Ministry of Industry has a budget of 4.64 billion kroner, a reduction of 161 million compared with the previous budget. The biggest items are technological development, which will get 1.88 billion, and energy, 1.04 billion.

A common feature in the budget is that state funding for technological R&D will be general instead of selective.

One example is the dissolution of the joint university delegation which stressed subcontractor development.

TFR will be able to continue its association with service points except for the money that will go to EC research instead.

The industrial design subsidy remains but the grant to the Swedish Industrial Design Foundation will be eliminated in the next budget.

"If Nutek considers design interesting it can continue to subsidize it. Other ways to finance it might also be found," Björn Engren said.

The government regards information technology as extremely important and feels that "Nutek should give this area a higher priority than it has in the past while R&D in other well-established technology areas should be able to get along without state support."

In addition to information technology, biological engineering, biomedical engineering and environmental engineering were cited as areas in which Sweden should invest.

"There is not enough money to develop research in all areas," Engren noted.

The government's new research bill will be presented in the spring of 1992. It is the new ministry will indicate which research areas are important to develop and strike a balance between national and international research.

#### Sweden: New Council for Interdisciplinary Research

by WILHELM VON KLOSTER NY TEKNIK in Sweden 4 Feb. 92, p. 4

(Article by Hans Åkesson: New Council for Interdisciplinary Research—first two paragraphs are NY TEKNIK introduction.)

[Text:] A new interdisciplinary research council will be formed in 1993. At the same time TFR's coordinating Board of the Swedish Research Councils will be dismantled.

"The new council will not work," said TFR's chief secretary, Paul Lundberg.

At the end of last year the government submitted a bill concerning the reorganization of the Coordinating Board of the Swedish Research Councils. Responsibilities for interdisciplinary research would be assumed by three research councils: the Council for Research in the Humanities and Social Sciences (HFR), the Medical Research Council (MFR) and the Natural Science Research Council (NFR).

Many universities and universities have proposed the proposal and expressed fears that this might be the end of interdisciplinary research.

The government is now reviewing itself and a proposal from the Education Ministry calls for the formation of an interdisciplinary research council by HFR, MFR, NFR and the Council for Applied Research, TFR. The members, the majority of whom will be researchers, will be appointed by the various research councils.

That was the response of Hans Åkesson, political adviser to the Education Ministry, to the intention of the dissolution of TFR.





Changes in the Number of Innovation Subsidies Since 1980 (Continued)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total innovation subsidies	1,267	1,625	1,428	1,614	1,777	2,184	2,181	2,701	2,817	3,241	3,328	3,474

\*A/E: Company subsidies during all periods; C/FACT: A/E/A/E \*A/E: Assistance to innovation departments

\*B/E: Research innovation companies

Changes in the Amounts of Innovation Subsidies Since 1980

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Company A/E*	127.4	158.1	161.1	144.3	133.4	128.2	122.1	156.2	162.7	168.8	168.9	168.1
Company B/E*			5.4	4.3	17.4	40.1	43.8	43.9	47.4	54.8	58.1	53.7
Total	127.4	158.1	166.5	148.7	150.8	168.3	165.9	200.1	210.1	223.6	227.0	221.8
Transfer subsidies	13.1	8	12.9	11.9	10.7	10.2	10.1	12.9	10.7	12.1	10.7	10.1
B/E				1.9	40.1	10.7	10.1	11.9	10.7	10.7	10.9	10.9
Independent companies	17	2	14	19	1.1	10	12	14.8	8	11.1	11.9	11.9
Foreign firms				12	7.1	11.9	10.7	11.4	11.4	11.1	11.9	11.9
Total innovation subsidies	140.5	166.1	179.4	160.6	160.9	179.2	176.1	214.9	221.5	234.7	238.9	232.8

\*A/E: Company subsidies during all periods; C/FACT: A/E/A/E

\*A/E: Assistance to innovation departments

\*B/E: Research innovation companies

\*Excluding EN/A/E (National Federation of the Association of French Research Subsidies 141.4 million)

## CORPORATE ALLIANCES

### Bull's President Defends Alliance With IBM

Translated from *HEBES*, 10/11/91, p. 10/11/91

[Article by Bull H. Fréchet, "Bull Group Strategic Alliances: Project Computer Company's Future—Interview With Francis Laurent, Vice President of the Division That IBM Will Gain a Majority Interest Here"]

[Paris, 8 Feb.—The statement by world computer market leader IBM in the French state-controlled computer company Bull, clearly does not mean the beginning of the end of Bull's independence. As the president and general manager of the Bull Group, Francis Laurent, said in an interview with *HEBES* in Paris, it is "out of the question that IBM will gain a majority interest here." As majority stockholder, the state wants to preserve Bull's independence, he said. On the other hand, this does not necessarily mean that the state must hold the majority of stock in the company; he added, the objectives of the state stockholder could potentially be subordinated to a stockholding company as well.

In addition, Laurent said, IBM does not even want control over Bull. Rather, the Americans are concerned in having their own strengths in a concentration process, to add "External growth beyond cooperative agreements and small investments in other companies is clearly not on the agenda in America." Laurent added that besides the American authorities in the United States, the European Commission in Brussels and in France would not permit the sort of takeover of Bull.

According to Laurent, IBM will have a 5-10 percent interest in Bull capital. This transaction could bring capital amounting to around \$100 million into the company. As present, the state holds 76 percent of the Bull stock, while 17 percent is in the hands of the France Telecom telephone company, which is also state-controlled. For a long time, the Japanese electronics company NEC, has owned 47 percent of the stock capital. As part of the IBM transaction, the state will lower its interest to 70 percent. Bull is listed on the stock exchange, but according to Laurent it plans to be more active there in the future. There is no communication of NEC to Bull's board of directors. IBM will not be given a seat in the board, the president added.

Laurent appeared uneasy with the decision for IBM, since Bull also had negotiations with Hewlett-Packard. The future of the computer industry lies in this type of strategic alliance, he said. Customers want a full range of products and a single manufacturer can no longer offer that today, he said. In the long run, an IBM-Bull stockholding investment would have been ideal. But that would have been a little too expensive for us, he said.

Locally, Bull negotiated with European companies including Siemens and Olivetti concerning cooperation in the area of microprocessors. However, these negotiations did not yield any concrete results. First, talks with Hewlett-Packard, with whom the company has been working for some time were initiated last year. Subsequently, parallel negotiations with IBM were launched. IBM understood as well that the use of larger manufacturers for itself as in cooperation agreements with Apple, Microsoft, and Siemens.



share. Sometimes, IBM has become a completely normal company," Lemaire said. "Initially, Sinagra's alliances are the only possibility for surviving in worldwide competition against Japanese suppliers," he said.

"In the future, we will be concentrating on the technology effort we took along the first. Everything else we will get from our partners," Lemaire said. He indicated that the greater financial possibilities in developing components were a strong selling point in accepting IBM's bid. On the whole, IBM was more interesting, he said. IBM's sales level in France is twice as high as that of Bull domestically.

Only 10 years ago, IBM wanted to dominate all aspects of the industry, Lemaire said. But ten years ago, however, this approach changed. IBM knows today that even the world market leader needs alliances. In Lemaire's view, there will be no global competition between IBM and Japanese suppliers. An important difference between American and Japanese computer manufacturers, he said, is that the Americans are under quarterly-results pressure, while the Japanese think in 10-year time frames.

The agreement between IBM and Bull basically covers five areas. IBM makes Power RISC architecture, including system software for application compatibility, available to Bull. Bull contributes its own know-how in multiprocessor technology to the overall further development of RISC architecture. Zenith Data Systems, Bull's main computer company, will supply portable PCs for inclusion in the IBM product line. Both partners want to expand this cooperation in the development and production of future laptops and notebook computers. Bull will supply IBM with 1.1 million PCs a year.

As founding members of the IBSI (Open Software Foundation), Bull and IBM will make RISC developments available to their respective customers as quickly as possible. In addition, the partners will exchange know-how for selected communications and network functions from the IBSI and SNA area. The partners will conclude production and associated licensing agreements, which are projected to reach a volume of several hundreds of millions of dollars a year. (Humanity, the financial investment in Bull by the Americans supposedly undermines the long-term character of this strategic partnership.)

Lemaire said that a number of developments are responsible for Bull's high losses—in 1990 there was a deficit of 5.1 billion French francs (Fr), while the net loss in 1991 should be around Fr1 billion. The main reason besides the clear drop in demand—only twelve products are still doing well—is the faster price war than PCs, he said. The latest generation of machines is capable of functions that only classical computers could perform in the past, he said. In addition, there is the general financial decline. Bull should be back in the black by the second half of 1992, the president said.

Lemaire, who estimates Bull's export share at 56 percent and its market share in Germany at around 1 percent, also said that companies are now intensifying their quest for better margins in the field of technical services as well. In addition, cost reduction programs are under way, and research efforts

are being concentrated and tightened up. With the completion of the European internal market, Japanese and American competitors will be thronging to Europe even more than before. However, IBM has been considered a European manufacturer for some time now. In 1991, the sale of hardware worldwide declined for the first time, the president of the French state-controlled company emphasized.

## Bull-IBM Alliance Discussed

### Alliance Defended, Others Detailed

LE MONDE Paris LE MONDE in French

24 Jan 92 pp 1-18

Article by Thierry Breher: "Reorganization of French Electronics Industry: Mrs. Edith Cresson Chooses IBM-Bull Alliance"; first paragraph is LE MONDE introduction.

[Text] Mrs. Edith Cresson announced on Tuesday, 23 January that IBM will be acquiring a stake in Bull's capital structure in exchange for a commitment to furnish Bull a leading-edge technology and purchase French products. Prime Minister Cresson stated that the choice had been "difficult." Mrs. Cresson stated that she had seen to it that "the independence of our computer industry" would not be compromised. She also stated that other agreements had been signed with Apple and Hewlett-Packard.

"Big Blue" has won. Bull has chosen IBM as its partner. The decision was Prime Minister Edith Cresson's, acting for the government as the majority shareholder of the French firm. After having met with the presidents of the republic, and obtained his agreement prior to the meeting of the Council of Ministers on Monday, 22 January—and following the return of her special adviser, Mr. Abel Ferrasse, from a whiskered trip to the United States where he met with the presidents of IBM, Hewlett-Packard (the other partnership candidate) and Apple, the industry's rising superstar—Mrs. Edith Cresson announced the decision on Tuesday, 23 January.

As she released this statement, Mrs. Cresson was accompanied by the heads of the principal French firms with an interest in what is actually a number of agreements linking the French computer and electronics firms with the top American firms in the sector. The day when the French firm's management was obsessed with the idea of keeping Bull from falling into the clutches of international computer giant IBM are now a thing of the past. Today, the Japanese threat appears more serious than American domination, especially now that IBM has lost some of its hegemony and, in any case, is no longer in a position to dream of a quasi-worldwide monopoly (LE MONDE 23 Jan). The choice, however, was by no means easy.

Bull needed a partner for a position in VLSI-based RISC (Reduced Instruction Set Computing) technology, which holds the future of the computer industry. The company therefore negotiated with the two American companies that were capable of providing Bull with the indispensable technical support (LE MONDE 15 January). With the proposal of both in hand, Bull's principal shareholder—that is, the state, hence the government—glided for a moment

In Mrs. Cresson's view, this agreement would have to be but another component of her plan for rescuing leading-edge French industries, the first component having been the merger of CEA-Industrie and Thomson's civil-sector activities (LE MONDE 15 December). The Marguier (prime minister's official residence) took the position that the chosen American firm—which would be gaining Bull's potential support for the use of its RISC systems—must not only support Bull's other activities, but must also participate in the development of SGS-Thomson, the Franco-Italian manufacturer of semiconductors.

From the prime minister's viewpoint, clearer as concerns the RISC technology since Hewlett-Packard had the considerable advantage over IBM. But as for the rest of it, IBM as the world's number one in computers, offered greater possibilities. And above all, after Bull's having been associated in the past with companies such as General Electric, then with Honeywell, both of which subsequently met with difficulties, the prime minister preferred to place her bet on prudence, that is, on a company that, whatever turn the computer market might take, would still remain one of the sector's big ones.

This did not mean that Mrs. Cresson had any intention of withdrawing agreements with other companies. Thus, after the heads of the French firms had negotiated with their American counterparts, what Mr. Farnoux went to the United States to wrap up, accompanied by the Industry Ministry's general director and a representative of the Treasury, and what Mrs. Cresson presented Tuesday morning, was an entire package. Here are its essential contents.

**IBM-Bull Agreement** IBM will provide Bull with the RISC Unix technology and immediately with products of the RISC family. IBM undertakes to order from Bull 150,000 portable computers a year for a period of four years. IBM will subcontract \$10 million of work a year to Bull's Angers plant. It will acquire approximately 5 percent of Bull by way of a joint augmentation of Bull's capital that will cost IBM between \$100 and \$150 million. This will not bar the way from also participating in the indispensable recapitalization of Bull. And—the prime minister having insisted adamantly on this point—Bull's engineers will have very open access to and within IBM's laboratories and plants working in the domain in which the two firms get associated as mutual partners.

**IBM-SGS-Thomson** IBM, which is already a very large client of SGS-Thomson, will double its orders on SGS-Thomson within the space of three or four years, that is, it will effect purchases of from \$50 to \$100 million (this passage as published). To render this feasible, the American company, every three months, shall notify its European partner of its needs. IBM will also purchase the transport microprocessors developed by SGS-Thomson. The two firms will institute a research and development partnership covering the entire field of microelectronics.

**Apple-Bull** Apple has developed an advanced computer design center at Austin. Apple has signed an agreement with IBM enabling the latter to share in the fruits of this research. Bull will join this club.

**Apple-France Telecom** Apple will work together with France Telecom, the CNET (French) National Telecommunications Research Center] laboratories, and TCE (Thomson Consumer Electronics) a subsidiary of Thomson, on the development of multimedia systems, and in particular on the new generation of Minix.

**Apple-SGS-Thomson** Apple currently purchases very little from the Franco-Italian firm, but later by little, through a partnership arrangement between the two firms, Apple will increase its orders on SGS-Thomson.

**Hewlett-Packard-SGS-Thomson** Although IBM was chosen over Hewlett-Packard for the agreement with Bull, Mr. Farnoux states that he has persuaded Hewlett-Packard to work together with SGS-Thomson on components outside of the RISC family.

### French Government's Strategy Discussed

LE MONDE Paris LE MONDE in French 29 Jan 92 p. 13

(Article by Caroline Monnet "Government's Electronics Strategy: Choice of Security")

[Text] The bidding has ended. The American firm IBM, the world's largest computer manufacturer, will be the privileged partner of the French public sector's Bull, which ranks 12th worldwide in this industry. Bull's board of directors was convened on the same day that the government announced the result on Tuesday, 23 January.

The agreement's strictly computer package had been wrapped up a good week before. The final discussions centered on the components package. The Prime Ministry, which had made its support of the microelectronics industry the keystone of its industrial policy (LE MONDE 22 January), went all out in the final days of the negotiations to obtain from the two competitors a commitment (favorable to SGS-Thomson, the Franco-Italian manufacturer of chips, which are distributed by SGS-Thomson). The Elysee, persuaded by Mr. Francis Lorient's arguments, decided in favor of IBM.

For the record, it is now known that Bull's management had planned to break the news itself several days ago. A board meeting had even been convened for Friday, 24 January, and the alliance with IBM was to have been the subject of a television press conference to be held that same day. The initiative was stopped dead in its tracks by the Prime Ministry. Aside from the fact that the government had no intention of being upstaged, last-minute negotiations had been scheduled for the weekend with Hewlett-Packard by Mr. Abel Farnoux, special adviser to Mrs. Cresson at the Marguier (prime minister's official residence), on a whirlwind trip to and from Palo Alto, California.

The stakes: A guaranteed future for Bull, and the rescue of SGS-Thomson from virtual bankruptcy. And the game plan followed was a double-ended strategy encompassing a vast palette of proposals available to each of the two partners for the head of the French group in marriage. The complex framework of the negotiations also made available a wide-ranging latitude on the government side, within which the

portions of each of the two competing entities could maneuver and press for adoption of theirs, and add grit to the record of events.

Some 10 days ago "Big Blue" for the first time in its history announced results in the red. Hewlett-Packard, for its part, banking on the success of its workstations, a market segment whose growth is currently among the most solid, with relatively comfortable margins, indulged in the luxury to rate these days in the computer sector, of posting a rise in profits. Despite financial results less striking than those of Hewlett-Packard, however, IBM, backed by the Bull management's expressed preference for it, was finally chosen.

### Industrial Peace of Mind

The choice evokes three comments. First, the French public-sector group is forging an alliance not so much with a manufacturer as with a family (the IBM-Apple-Motorola clan) which, like its four other rivals (the Hewlett, Sun, DEC, and MIPS families), is striving to gain the ascendancy in the technology of Unix-based RISC (Reduced Instruction Set Computing) microprocessor machinery (J.E. MONTIE (+ January). By deliberately joining a clan, Bull gives the members of that clan a decided advantage in the race to set standards. The government agencies all undersized sufficiently early on into the proceedings—and this is to the credit of the Matignon—thus the alliance held strategic interest for both IBM and Hewlett-Packard.

Despite its poor financial performance—the Bull group was compelled to report 2.4 billion francs (Fr) in losses for 1991, following the Fr6.8 billion loss posted the preceding year—as well as 1991 sales shortfalls, Bull was able to enter negotiations from a position of strength. This was not the case last summer, when it negotiated and signed an agreement with Japan's NEC. Nor was Brussels able to negotiate from strength during its talks with Tokyo on the opening of the European market to Japanese cars.

Second, in opting for IBM, Bull considered first of all the question of commercial security. The number of "Big Blue" machines installed worldwide is far larger than that of Hewlett-Packard machines. Next came the question of industrial peace of mind. In delegating the production of microcomputers to Bull, the American giant provides the Angers plant with a workload amounting to several tens of thousands of work hours, lacking which it faced the probability of a thorny social problem. The security, of course, is far from total. And Bull, with a revenue one-sixth the size of its partner's, is going to be hard put to make its voice heard within its adopted family.

And third, the problem of recapitalizing SCA-Thomson has still not been resolved. IBM, the Franco-Italian chip manufacturer's number one client, has promised to double the number of chips it buys from the firm. But it has refused, for the time being, to acquire a stake in the firm's capital. Apple is also expected to purchase its needs from SCA-Thomson. And as an indirect result, the partnership with Germany's Siemens could be revived. IBM and Siemens have been working together since summer on the development of 64-megabyte memories.

For the moment, Bull's industrial problem can be said to be resolved. What it now needs is a new margin for financial maneuver. IBM is to enter the financial structure of the Bull Machines Company to the extent of 5.7 percent. IBM's share will be larger than that of NEC, but smaller than that which came at the Matignon, contrary to Mr. Francis Lorenz's views, considered desirable. The figure of 9.9 percent was advanced on several occasions. Bull's financial position will still depend in large part on Brussels, which is examining the Fr2 billion in capital grants the French Government has planned for 1991 and 1992. Talks with the European Commission have intensified. Paris appears prepared to offer, in exchange for a retraction of the EC's veto of the direct capital grant for 1992, a commitment to make = the last capital grant altogether.

### Volvo Merger With Praxidia Planned

J/WRM/TV Stockholm SV TELENOR in Sweden  
31 Jan 92 p 4

[Article by Jan Malm. "Praxidia Funds Will Back Volvo Research"]

[Text] Money of its own instead of having to borrow funds to develop new car models.

That is an important ingredient in the planned merger of Volvo and Praxidia.

Most of Volvo's profits during the 1980's went into developing new car models.

"Even when we do not have any profits we have to invest a lot of money," said Hans Rensman of Volvo's redevelopment division. "Then we have to borrow the money, which is not advantageous."

A merger of Volvo and Praxidia will make the two companies less sensitive to market fluctuations. Bad times for the car industry can be offset by better times for the food products industry, which is now Praxidia's main interest.

### Framatome To Enter German Automotive Market

J/WR/Stone Paris L'USINE NUCLEAIRE in French  
6 Feb 92 p 43

[Article by Xavier Dehoust. "Framatome Pigs In Its Connectors In Germany" first paragraph in L'USINE NUCLEAIRE commentary]

[Text] By teaming up with a German wiring specialist, Framatome Connectors International is trying to get in the door with Germany's car makers.

Framatome Connectors International (FCI) has pulled off a double coup in Germany. First, it took over the Schmid connection company last December. Now its Dusseldorf subsidiary, which had sales of 11 million French francs (Fr) in 1991, has just wrapped up a sales and marketing collaboration agreement with the Leuninger Drahtwerke (Leunig) group.

The Nuremberg manufacturer designs, makes and markets electrical beams for Porsche, Mercedes-Benz, Audi, and Ford. It has sales of Fr1.7 billion and 4,000 employees. FCI, which has a turnover of Fr3.5 billion and 7,000 employees,

working for Safran, Borely, Japart, and Connecticut, has its eye on Leno's auto-industry references. It has been trying for several months to get a foothold in the German automobile market. "This makes us more credible partners for those manufacturers," says one of FCT's managers.

Initially, FCT's acquisition of Schmid (Fr45 million in sales and 110 employees) gave FCT Deutschland, which started as a simple assembly and sales subsidiary, the manufacturing facilities it lacked. Most important, however, teaming up with Leno provides the French company with a local intermediary that has a firm foothold in the auto companies. The German company will promote FCT's new Sigma technology, which is already employed by Renault, in the Rheinland.

The two groups do not plan to acquire stock in each other, and say that their only interest is in developing integrated electrical wiring systems together.

### French Electronic Components Firms Unite

*(JW Shihidi) Paris L'USINE NOUVELLE in French  
A Feb 12, p 4*

[Article by Alain-Gabriel Verdoyre: "Secofis, Or How to Bring Together Companies Without Swallowing Them Up" first paragraph is L'USINE NOUVELLE introduction]

[Text] Secofis's challenge—combining small companies and multiplying economies of scale—is not a simple one, when the companies are scattered all over France.

Bringing together small businesses and consolidating the territories between them without diluting each one's identity is a formidable challenge. Yet that is what Gilles Benhamou, a 34-year-old graduate of the Polytechnical School and a former high-ranking official in the Ministry of Industry, is gambling on doing. "We try to bring together electronic component manufacturers that are making profits in niches largely overlooked by the competition and ignored by the large groups. And, if possible, manufacturers that are leaders in their industries," explains the CEO of the Secofis group, which was formed in 1989.

The holding company of 600 people tripled its sales in one year, making 100 million French francs (Fr) in 1991. It expects net earnings of Fr25 million, and already has eight companies under its wing. Its latest acquisitions include the telephone connector specialist Forgas last July (Fr15 million in sales), and the Saveny firm AEMF (Fr30 million) last October. AEMF is a leader in solenoid valves for diesel engines.

Gilles Benhamou is negotiating to take over foreign business interests with the backing of financial partners, particularly regional development companies, which invested in Secofis in 1989. Secofis now supplies the vast majority of automotive solenoids used in France, nearly 100 percent of the

diesel engine solenoid valves, and 25 percent of the telephone connectors. Secofis's CEO wants the holding's diversified firms to retain their autonomy and small-company structure, while substantially cutting their administrative, sales, and research and development costs through a pooling of resources. "We reduce the overhead of the companies on average by 20 to 40 percent initially," stresses Gilles Benhamou.

### Going After Overhead Costs

A few years ago the eight companies in the group Forgas (radio antennas and semiconductors) spent Fr60,000 in monthly salaries for its accounting department alone. Today the holding company spends barely twice that for eight lot sizes as great. Similar savings have been made in sales departments.

The strategy is simple, but implementing it sometimes leads to paradoxical situations. To achieve economies of scale, companies were grouped together at three industrial sites: Cluses (Haute-Savoie), Rueil (Seine), and Mennecy (Yonne). But that is just the trouble. It is hazardous to try to maximize the specific potentials of each small company while making most of them move. Interwisch, which manufactured push-buttons in the Paris area, was forced to move its production to Aoste. Forgas had to do the same, in Normandy.

The migrations are not painless. One of Forgas's 30 employees agreed to follow their company. Gilles Benhamou is aware of the contradictions. Indeed, he wants to create new identities around the three geographical hubs. Such a cultural shift will be vital if Secofis wants to hang on to the know-how of its companies.

### CEA, Saint-Gobain Sign Monocrystal RAD Agreement

*(JW Shihidi) Paris L'USINE NOUVELLE in French  
A Feb 12, p 7*

[Article: "Agreement Between CEA, Saint-Gobain To Study and Develop Monocrystal Materials"]

[Text] Paris—An accord providing for the development and manufacture of semiconducting and laser monocrystals was signed on 12 February by the Atomic Energy Commission (CEA) and the Saint-Gobain group, according to a CEA communiqué.

The difficult-to-obtain crystalline substances quartz, silicon, and gallium are used in the fabrication of semiconductor, optical components and in detection of nuclear radiation (semiconducting materials emit light when they receive radiation).

The accord, ratified by the general administrator of CEA, Mr. Philippe Rivereille, and the president-general manager of Saint-Gobain, Mr. Jean-Louis Brilla, involves cooperation between the industrial structure division of Saint-Gobain and the optoelectronics division of CEA's LETI (Electronics, Technology and Industrialization Laboratory). The research will be conducted at the LETI facilities at the CEA research center in Grenoble.



### Dassault, BAE May Build Future Military Planes

*J/WHISKEY Paris AFP SCIENCES in French 20 Feb 92  
pp 18-20*

[Article entitled: "Dassault Wants to Study the Military Planes of the 21st Century with British Aerospace"]

[Text] Paris—Dassault and British Aerospace (BAE) are discussing a joint research agreement to study the military planes that will replace turn-of-the-century combat craft after 2020. Dassault Aviation's management announced the talks on 18 February in Paris.

Two Dassault Aviation vice-presidents Charles Edrington and Bruno Revillon-Falcoz said that Dassault and British Aerospace "have been actively discussing the matter for about two years, and the main theme is beginning to set." Dassault and BAE are currently rivals over the Rafale and EFA (Eurofighter Aircraft) fighter planes. The two Dassault officials added that: "We will make joint proposals for shared research contracts to our two governments over the next few months."

Mr. Serge Dassault and his two vice-presidents declined to say whether the joint studies would focus first on future combat planes, training planes, or patrol planes. A cooperative venture in business planes may also be included in the plan.

Messrs Edrington and Revillon-Falcoz are discussing the possibilities with BAE officials Dick Evans and Ted Gulliford, assisted by a working group of 20 engineers from the two companies. "We have the same ideas about future planes and are already prepared to travel a long way together," stressed Dassault's managers. "But the rest of the joint teams and the specific applications we work on will depend on how much scope our governments want to give to our collaboration."

The Franco-British joint venture, Dassault stressed, will be open to other European partners. It is comparable in every way to Aerospatiale's and BAE's current joint study on a civil supersonic plane to replace the Concorde, said Mr. Edrington.

Dassault worked with BAE on the European combat plane Eurofighter until 1985. At that time France broke off with its British, German, Italian, and Spanish partners to design its own lighter and more versatile craft, the Rafale, and provide steady work for France's engine-maker SNECMA and radar manufacturer Thomson.

The EFA program is the most ambitious multinational weapons project ever undertaken in Europe. It bears a price tag of \$35 billion. But the program's health has been shaky since Germany, which originally planned to buy 250 EFAs, announced in January that it would make a purchasing decision during the year.

### France's Merlin Geron Increases Market Share

*J/WHISKEY Paris L'ESPRESSO in French  
17 Feb 92 p 17*

[Article by Dominique Commenet: "Merlin Geron Sets 1-2 Step in Switzerland" L'ESPRESSO introduction

is "To increase its market share abroad, the Grenoble firm is acquiring foreign companies."

[Text] One of the world's leading companies in electrical equipment, Merlin Geron, is pursuing its policy of acquisition in Switzerland. The takeover of foreign companies has played a substantial part in increasing the Schneider group subsidiary's sales twelvefold in 10 years. Merlin Geron had turnover of 20 billion French francs (Fr) in 1991.

Over the next few months, the Grenoble firm will be putting together a deal to acquire a majority stake in Feller Company, one of the big players in the Swiss market for terminal equipment (circuit breakers, switches, and so on).

Feller is located in Horgen, near Zurich, and employs 520 people. It has sales of Fr 660 million, almost entirely from its domestic market.

### Developing Specific Product Lines

Feller was seeking a partner that could ensure its own growth. Merlin Geron's chief competitor in electrical equipment, the French firm Legrand, might just as easily have been attracted to the opportunity.

Penetrating the Swiss market, like many other markets, requires companies either to develop specific product lines that conform to the electrical standards of each country, or to take over a local manufacturer. The smaller the market, the harder it is to make a profit developing a new line.

Consequently, both Merlin Geron and Legrand routinely follow a strategy of acquiring foreign companies to increase market share abroad. The most striking illustration is Schneider group's acquisition of Square D last year. It gave Merlin Geron, which now holds 45 percent of the stock of Square D, the 35 percent of the American residential distribution market that Square D brought to Schneider.

The Grenoble firm's huge American venture has not costed its order, though it is depressing its net earnings. Merlin Geron's net income for 1991 should total about Fr750 million, before the negative impact of the Square D investment.

After acquiring an interest in Square D, Merlin Geron purchased the monitoring and fire alarm business of Delta Production and Yalco in France, and of Elkron in Italy, before taking over Feller in Switzerland.

## CORPORATE STRATEGIES

### Italian Government Plans to Aid Olivetti

*J/WHISKEY Zurich/Paris HANDLESBLATT in German  
18 Feb 92 p 30*

[Text] The Italian state intends to give significant aid to the only large domestic producer of information technology, IRI (Olivetti & Co. Irieta) to alleviate its difficulties.

This is seen from the negotiations under way among several state ministers, the trade unions, and the Olivetti management. The most important result seems to be that an agreement for a joint software group, created last fall, is taking shape again. At that time Olivetti demanded the majority of capital in the case of a merger of the software

activities of the state company Finisil (IRI group) and Olivetti OIS. The state refused, since it feels that this activity is of strategic importance. Then Olivetti president Carlo De Benedetti announced that he would have to seek an alliance with foreign partners and began negotiations with the French group Cap Gemini.

Now De Benedetti is announcing a "pause for thought" for these talks, since Olivetti is obliged to consider the offer of the Italian state. According to De Benedetti, Olivetti has now twice rejected the approaches by IBM for compensation and a minority share, since "the IBM proposal amounted to us getting a sales network on the cheap." The U.S. company was mainly concerned, as is the agreement with Bull, with getting another system for its "RISC" platform," according to De Benedetti.

According to Olivetti management, the company lost 290 billion lire (192 million German marks [DM]) in 1991, which included the costs for 7,000 surplus personnel. The company earned DM62 million in 1990.

In the next few days the management will decide whether and to what extent extraordinary expenditures for a reorganization, begun in 1991 and continuing this year, will be included in the losses for 1991. The company's turnover dropped by 5 percent in 1991 to 8,600 billion lire (DM 17.6 billion) and resulted in an almost balanced operating result.

Because of self-financing, the debt even decreased, in 1991 it was DM1 billion. At this stage in the negotiations, the Italian state is offering Olivetti considerable aid, of the 2,000 surplus personnel who are in Italy, 1,000 are to be taken into the northern Italian public administration. At the same time, Olivetti is to receive large public contracts. Moreover, Rome will probably offer the company considerable funds for research and technical renewal. Olivetti had requested DM2.8 billion for the years 1992-1994, but a new law for refinancing must be created for 1991 and 1994.

#### Siemens Wants EC Financial Support for Chip Factory

ESP/111 Düsseldorf *HANDELSBLATT* in German  
19 Feb 92 p 17

[Text] Concerning the efforts of the EC Commission to bring Europe's three largest semiconductor manufacturers under one roof to achieve the dimensions of the Japanese chip producers, Siemens chairman Dr. Karlheinz Kaizer made a counterproposal in a letter to EC Commissioner Pandozzi. For each new chip generation, starting with the 64 megabit memory chip, the EC should build a large factory. Only in this way can one eliminate the numerous cost disadvantages of European producers, according to Jürgen Kaier, member of the Siemens board of directors and head of the semiconductor division. Thus far EC Commissioner Pandozzi has only promised to examine Kaizer's proposal in a favorable manner. In Kaier's view, the Europeans need to obtain direct access to the next generations of memory, the 64 megabit DRAM, and the 256 megabit DRAM, as well as the subsequent gigabit domain. His ideal site for European production of the 64 megabit DRAM developed in partnership with IBM would be Regensburg or because of subsidies

and the technical personnel there, Dresden. If, however, the EC does not support the construction of a chip factory, then the alternative, for reasons of cost, is to build a production site in Singapore, because there is already an offer on the table from that country that it would build a chip factory at its own expense which Siemens could operate, according to Kaier. In Kaier's view, however, a quick decision on the location of the 64 megabit production is not yet necessary, since the production of the 64 megabit chips will not go into full swing until 1993/94. Before that, a pilot production at the IBM facility in East Fishkill, New York could be used for the initial need. However, this will not be sufficient for either IBM, the world's largest user of chips, or for the business of the Siemens semiconductor division.

Whereas Siemens was still six months behind the Japanese in the 4 megabit DRAM chips, the German electronic company will come on the market at the same time as the Japanese in the case of the 16 megabit memory chips made at the IBM plant in Courmelles near Paris, and with the 64 megabit DRAM chips, according to Kaier. However, the investment in Courmelles requires a total of \$1 billion for production, thus DM600 million for each partner. For the production site of the next generation, namely the 64 megabit DRAM chip, Kaier estimates that the material investments will be \$1.8 billion and the research and development costs \$1.5 billion. Siemens can put and will not finance such high investments out of its own pocket, said Kaier in justification of the letter by his firm to the EC Commission, asking for financial aid. Siemens intends to continue to expand in the semiconductor market through cooperation with large companies such as IBM. Of the 60 semiconductor manufacturers, eight are major players, each of which has a world market share of about 5 percent. There are also 27 medium-sized semiconductor companies, which includes European companies such as Siemens. In Kaier's opinion, these companies must attempt to maintain themselves by cooperating with other companies so as to be among the pioneering companies. According to Kaier, there is hardly a semiconductor manufacturer who is currently operating profitably. This is also true for Siemens, whose semiconductor division is roughly one-fourth below the plan and below last year's level in terms of increasing orders and sales. The current staff of about 14,000 employees is to be reduced by well over 2,000 people. With this leaner staff, Kaier intends to achieve sales of DM1 billion in three or four years (it was DM2 billion in 1990 and 1991) and to reach the break-even point.

#### Siemens' 1991 Results, Future Plans Discussed

##### Profits, Future Tasks

ESP/111 Düsseldorf *HANDELSBLATT* in German  
17 Feb 92 p 17

[Article] "Worsening Operating Performance Despite of Siemens' Strong Information Systems and Semiconductor" - Siemens' Basic News to Handwerks Treue figures in parentheses following stated results are those of the previous fiscal year.

[Text] Munich, Thursday, 16 Feb 92 *HANDELSBLATT* - Acting Chief Executive Officer Dr. Hans-Joachim Pöhl-



who held the annual press conference in Munich in place of the unfortunate Siemens president. Dr. Karlheinz Kasner reported on a varied trend in individual management areas of the Munich Siemens Group in fiscal year 1991/92 (30 September). To be more precise, Siemens had to digest in the current year considerable losses of its subsidiary Siemens Nixdorf Information Systems (SNI) in the tune of "81 million German marks [DM] and of its semiconductor division of probably an order of magnitude of [DM]100 million, as indicated by Financial Chief Dr. Karl Hermann Baumann. All the same, the German electronics giant did not stop profit-wise.

If all the same there is on balance slightly improved performance in Siemens' worldwide financial statements reflected in the earnings per share that rose to [DM]4.12, then this is due above all to the doubling of the financial results to around [DM]2 billion of the so-called "Siemens Bank," which contributed the greater share to the operating result of [DM]4.2 (2.6) billion. The gains on earnings that rose to [DM]4.1 (1.1) billion reflect the improved earnings position of the parent company Siemens AG (German stock corporation) and the higher transfer to reserves.

According to Baumann the performance of the management sector got 20 percent worse above all because of the Siemens result which came into play for the first time. However, the loss of the chronically in deficit semiconductor sector also became still larger. Regrettably, it is true, the loss of its U.S. subsidiary Siemens Corporation of New York decreased to [DM]145 (147) million. However, a loss of [DM]60 million appeared in addition for the first time for its American SNI subsidiary. Considerable losses were also reported by its Argentine and Brazilian subsidiaries. However, about three-fourths of its U.S. business is in the black.

In contrast to the year before, a negative investment result of 111.1 is reported (versus a positive of 118.8 the year before). Of the [DM]114 million in charges resulting from agreements to assume losses, about [DM]20 million are accounted for by the companies in the new federal lands. However, here it is not a question of operating losses but of purchased materials and services that are resulting in part from the employment of preferential treatment. Baumann explained: Orders in the tune of [DM]1 billion have already been brought in from the new federal lands and [DM]1 billion worth of sales entered. The [DM]2 billion worth of sales (new orders reached approximately the same level) in the Siemens companies acquired or founded in the new federal lands are not included in this figure. These are being consolidated for the first time in 1992. The contribution of the Eastern German business thereby reached 4 percent of new orders, that rose by 22 percent to [DM]1.7 billion worth, and 3 percent of sales, that expanded by 18 percent to [DM]7.1 billion worth, Pinner emphasized.

Sales increased to [DM]1.1 billion just through the consolidation of new companies—above all SNI, Thury and Pinner—as that 9 percentage point of the 14 percent increase in sales are accounted for just by the inclusion of these new companies. In fact, the first quarter of the current fiscal year 1991/92 began with a slight increase of [DM]0.1 billion for new orders. However, that is to be attributed to

the high base of the same period of the year before. Pinner emphasized, who is expecting a 5 percent increase in orders of [DM]66 (67) billion for the new fiscal year.

Sales growth of a good 10 percent is in sight in the current year in the tail wind of a high backlog, so that the mark of [DM]60 billion should be easily exceeded. The volume of business grew by 8 percent to [DM]16.2 billion in the first quarter, where domestic business proved to be an engine of continuous growth with an expansion of 9 percent, while foreign business rose by only 3 percent.

Financial Chief Baumann spoke of a normalization of the 1991/92 financial results, which were characterized in the year before by especially high extraordinary write-offs of [DM]23 million. This year's extraordinary write-offs dropped drastically to [DM]9 million. In fact, the still high liquidity of the "Siemens Bank" dropped further to [DM]16.6 (15.5) billion through major acquisitions, but net interest income improved to [DM]80 (103) billion. In addition, greater earnings were obtained by the sale of securities.

Siemens Vice President von Pinner is expecting an additional profit percentage of 2.3 percent for the current year too. In view of the expected reduction of the loss of EDO subsidiary SNI, however, the share of operating results in total earnings should increase more. Baumann is also assuming a slight reduction in liquidity for the current year, which should have an effect on net interest income.

In spending on fixed assets, von Pinner announced a slight increase in the current year. In the last fiscal year of 1990/91, in fact, total capital spending dropped to [DM]1.8 (1.7) billion, but spending on fixed assets increased to [DM]1.4 (1.4) billion and thereby exceeded the [DM]1.4 (1.4) billion worth of capital asset consumption.

Meanwhile Siemens has taken a 24 percent interest in the Austrian company Schiff-Verkehrstechnik Leoben AG (Ship Traffic Engineering Limited Liability Company) that is manufacturing 2.4 billion whirlings worth of sales with 200 employees at its Vienna and Lienz locations. This acquisition is part of Siemens' managing board's strategy of expanding further its activities in traffic engineering, emphasized Managing Board Member Hermann Franz. The involvement in the Czech Smele-iron-works-fits-into-the-concept. On the other hand, no decision has yet been come to as to whether the Siemens Group will take an interest in the subsidiaries Chemat and Syntavia.

In presence in the Eastern European market will also be increased, with its entry into the fields of power generation and traffic engineering in Noida. It has just 1 percent of the world's business at present, but von Pinner considers it strongly capable of development with an improvement in Eastern Europe's financial position. In addition, he further expansion of its U.S. business. Siemens is also aiming at expansion of its Far East business to an approximately 5 percent share of its total sales. In fiscal year 1991/92, its new orders in Japan still lay only just under the [DM]1 billion mark. This is seen as an optimistic indication of the expansion of its business in this difficult market.

Von Pater named two main tasks for the current year: reduction of its semiconductor losses by a restructuring program in the form of a transfer of production capacities from Munich to Villach, whereupon around 1,000 jobs will be cut in Munich. The second Hermsdorf task concerns the further revamping of Siemens Nixdorf Information Systems. The group loss of DM7.1 million will in the end not be reduced appreciably by bringing together formerly independent units. An increase in share capital is not being considered, they say, but if all warrant holders use their stock warrants, then DM1.9 billion of capital resources will go to Siemens, which would equal a DM1.9 billion increase in nominal capital.

#### Higher Number of Employees

620 512/10 Thurnsdorf HANDELSBLATT in German  
17/18 Jan 92 p 11

[Article: "Siemens Employees/Inclusion of New Subsidiaries: Number of Employees Has Risen by Eight Percent"]

[Text] Munich, Thursday, 16 Jan 92 (HANDELSBLATT)—At the end of fiscal year 1990/91 (30 September) Siemens employed 802,000 people worldwide, 8 percent more than in the year before. This increase was accounted for almost all by the inclusion of new companies: 24,000 Nixdorf employees, 1,000 from Plessey and 2,000 each from Datang and Stensberg-Carlson. Its number of employees will increase to 819,000 in the current year through the consolidation of the Eastern German companies.

However, for the further course of fiscal year 1991/92, Acting Chief Executive Officer Dr. Heinrich von Pater announced a cut in the number of employees. "For economic reasons and as part of the program for cutting losses in semiconductor and above all at Siemens Nixdorf." When payroll costs rose by 18 percent to DM7.9 billion last year, then about 75 percent of this additional expenditure of DM4.8 billion would be accounted for by the newly consolidated companies. At Siemens AG, 17 percent of payroll costs went to voluntary benefits like, for example, employee pension arrangements for retired employees and surviving dependents, but also for measures for training and further education, for health care and for the offering of employee shares at a special price.

The number of employees outside Germany rose by 11 percent to 155,000 last year, while it increased by 8 percent to 241,000 (230,000) in Germany. Siemens handed out DM400 million for training and further education in the year under review.

After the number of employees had increased by 15,000 in the early months of fiscal year 1990/91, in the later months of the year it dropped continuously by 6,000. This decrease affected companies outside Germany above all. In addition to Siemens Nixdorf Information Systems AG and in the semiconductor sector, the private communications systems, motive power engineering, vehicle and installation equipment, as well as the security equipment sectors reduced their number of employees. Last year Siemens filled 1,970 openings for trainees. At present a total of 12,219 young people are learning an industrial, commercial or technical job or are completing a traineeship at Siemens.

#### Bosch-Siemens' Results

620 512/10 Thurnsdorf HANDELSBLATT in German  
17/18 Jan 92 p 11

[Article: "Bosch-Siemens' Market Share Improved"]

[Text] Munich, Thursday, 16 Jan 92 (HANDELSBLATT)—Bosch-Siemens-Haushaltsgeraete GmbH (Household Appliances Limited Liability Company) (BSHG) was able to strengthen its strong position in European markets because of its uninterrupted growth for years. Its world sales rose to over DM7.6 billion in fiscal year 1991. Its strongest growth came again from the domestic market here. While "white goods" appliances (washing machines, refrigerators, freezers, dishwashers, etc.) as a whole scored a distinct plus, entertainment electronics fell slightly back after the world soccer championship games in 1990. The growth all told has probably been in the neighborhood of 8 percent. However, it reached about 10 percent in the domestic market.

With a market share of around one-third, BSHG clearly occupies the number one spot in the German market. In Europe, it is in second place with 33 percent behind the Electrolux Group and it occupies fifth place worldwide. The new federal lands have probably already gained a share of about 10 percent of the German household appliances market. Meanwhile the BSHG group is number one in the Western European market for electric ranges and ovens with a market share of 18 percent.

#### Research Activities

620 512/10 Thurnsdorf HANDELSBLATT in German  
17/18 Jan 92 p 11

[Article: "Siemens Research: Share of Public Funds Came to Last Under Three Percent; 47,000 Employees Busy in Laboratories"]

[Text] Munich, Thursday, 16 Jan 92 (HANDELSBLATT)—The Siemens Group wants to further strengthen its market position in as many areas as possible by increasing its research and development effort. Expenses for research and development decreased to DM7.9 billion because of the acquisition of Nixdorf and Plessey. Around 47,000 (45,000) employees in laboratories are creating the prerequisites for the market shares of the future.

Management units are furnishing about 90 percent of the R&D output, and central departments around 10 percent. Financing is taking place almost completely from self-generated earnings. The share of public funds came to just under 1 percent in 1990/91. Siemens is pursuing research and development in 23 countries. A good 12,000 (10,000) employees are busy in laboratories outside Germany. This increase is due above all to acquisitions of firms having major development departments. Its largest foreign research and development centers are in the U.S. and in its neighboring European countries. Large teams are working on software development in Asia, Taiwan and India.

Siemens has further expanded its cooperation with the best universities in the world. It was reported at the presentation

of its annual financial statement figures. Berkeley, California, Berlin, Bonn, Erlangen, Munich, Pittsburgh, Princeton, Vienna and Zurich are the focal points here. The research and development projects sponsored by Bonn and Brussels are to serve as a catalyst in information technology, research on energy and materials, and increasingly in environmental engineering.

Siemens will continue with determination the concentration, begun in the last few years, on basic research. Twenty-two core technologies are being worked on at present in five central technology laboratories. Siemens' managing board expects that these will be decisive for ensuring the future.

The memory business where, however, the demand for 4-MB DRAMs is still growing rather slowly, belongs to the most important core areas. Though the memory business is still characterized by the 1-MB DRAM, Siemens concluded a development cooperation agreement for 64-MB DRAMs with IBM and an agreement with the same partner for the joint manufacture of a 16-MB DRAM. Siemens expects, as early as in the summer of this year, the first chips from this manufacturing operation in the vicinity of Paris.

Siemens is supplying, as the only European manufacturer by utilizing its memory technology, Video RAM modules for flicker-free television. Siemens wants to gain access to the Japanese market also with this picture-within-a-picture module.

#### Siemens Nixdorf Loses

WRSN/18. Dornseider *HANDELSBLATT* in Germany (1 Jan 92 p. 18)

[Article] "Siemens Nixdorf Extensive Cost-Cutting Program. The First Year Ended With a DM781 Million Loss"

[Text] Munich, Tuesday (4 Jan 92) (*HANDELSBLATT*)—The first annual report of Siemens Nixdorf Information Systems AG (SNI) in Munich showed a large loss, as Chief Executive Officer Dr. Hans-Dieter Wending had already announced. Subsequently, it was stated in the SNI Group as being DM781.4 (DM799.6 million the previous year) million after taxes and DM740 million before taxes. These results are characterized considerably by the restructuring expenses and costs of the merger; the managing board emphasizes. The dramatic drop in prices had an effect of around DM740 million for SNI in reporting year 1990-91.

Because of this the group's net loss for the year climbed to DM158 (0.796) billion. The operating result, at DM120 (793) million, was in the loss wedge. The first quarter of the fiscal year that has ended was affected especially strongly by the merger measures. However, SNI's operative capabilities was able to be improved starting in January. Chief Executive Officer Dr. Hans-Dieter Wending emphasized. This is reflected in the fact that more than DM7 billion worth of new orders and sales were obtained in the second half of the year. All told, 1990-91 sales dropped by 2 percent to DM12.13 billion. On the other hand, new orders, at DM11 billion, exceeded by 9 percent the previous year's level. SNI accordingly fell further into step in the market; the managing board emphasized. Sixty-two (41) percent of the

volume of business was domestic. Domestic orders also reached about the same share.

#### Investments Definitely Exceeded Winddowns

Wending is prepared for a restructuring loss at SNI in the current year also, but it will prove to be definitely smaller than in 1990-91. Prior restructuring costs are no longer to be digested in the current year. When the new organization becomes large in the meantime, costs should drop considerably, so that a considerable improvement in results is expected by the managing board on the basis of the sales reached in the second half of the fiscal year that has expired. However, in all there will be a loss again—of a smaller one—also at the end of the current fiscal year.

Above all the foreign subsidiaries in England, France and Spain, that all told imposed a loss of DM178 million in the reporting period, are also causing worry.

When the synergy potential is utilized fully by the end of 1992, cost reductions of an order of magnitude of around DM600 million should be gained, Wending hopes. Almost half of this cost reduction is to be brought about by the cutting of about 5,000 jobs that has occurred already to some extent. The other half is to result from location streamlining, the integration of similar production processes and also by a reduction of production costs. Streamlining of the business in distribution and service as well as the rapid winding-out of money-losing areas fall under this category.

Around DM1.7 billion will be spent on research and development again in 1991/92 too, as in the past year. The newly founded SNI absorbed DM600 million last year, so that the DM177 million in winddowns was definitely exceeded. The managing board's goal is to maintain also in 1991/92 the previous year's level reached in the second half of the year under review, so that annual sales of around DM14 billion will be achieved with a smaller workforce. The sales per employee will improve considerably in the current year because of this. SNI employed 51,641 people worldwide at the end of September 1991.

However, the managing board is assuming that the strong competition pressure will continue also in the current fiscal year, so that SNI will have to try hard to achieve the hoped-for growth and a simultaneous improvement in profitability. The proposed incorporation under German stock corporation law of the companies into the Siemens Group will contribute to the improvement of its earnings position. SNI's managing board is expecting from this not only benefits from more suitable capitalization but also from better financing possibilities within the Siemens Group.

#### German Automobile Industry Looks to Future

##### Volkswagen Plans Investments

WMSN/18. Dornseider *HANDELSBLATT* in Germany (11 Jan 92 p. 18)

[Text] The Volkswagen group has launched the largest investment program in the company's history, announcing that 5.1 billion German marks (DM) are to be invested worldwide in the automotive sector by 1996. According to finance director Christy Ulbringer, a further DM17 billion

will be invested in the company's hire and leasing business, making a total figure of DM62 billion.

VW has also set a new sales record, with 3,126 million vehicles sold by the Wolfsburg company during the 1991 financial year, compared with 3,030 million during the previous year. This was a result of the boom created by the surge in demand from the new lander, which led to a 27.5 percent rise in sales, to 1.197 cars.

The group's profits remained at the previous year's level of DM1,086 billion. VW also reported increased expenditure on updating the product range would keep Volkswagen AG's profits below the previous year's figure of DM670 million.

### Job Cutsbacks Anticipated

*VZMINNAB Bonn DIE WELT in German 15 Feb 92 p 10*

[Text] The German automobile industry is reacting to competition on the world market by increasing job cuts. The boards of most companies have already drawn up detailed plans regarding the sectors where the workforce must be reduced, and by how much, to enable them to compete on cost with other European and Japanese manufacturers. Speaking in Frankfurt, a specialist of the IG Metall labor union said, "relations with the company managements have really heated up now."

Union representative Wilhelm Herber, a member of VW's supervisory board, accepts the need to reduce jobs in the face of Japanese competitors' far lower production costs. As Winfried Griesma of the Automobile Industry Federation (VDA) understands, wage costs here are a third higher than in Japan, while Germany is at a 50 percent wage cost disadvantage compared with Spanish factories, and over 40 percent compared with British and French firms. Cost reduction was therefore becoming urgent for German car manufacturers, who had become somewhat spoiled by their record sales since the political change in Eastern Germany, but who now faced an uncertain economic future.

VDA President Erika Emmerich feels there is a point of labor to which "thought must be given." Whereas Germany's EC partners had cut at least 410,000 jobs in the period since 1980, an additional 70,000 jobs had been created in Germany. The result was that the German automobile industry had reached a record 787,000 by the middle of 1991, although over 10,000 jobs had been cut since then, according to the VDA. It is difficult to forecast the scale of the impending cuts, as so much depends on the economic situation, fluctuations in overseas market shares, and wage settlements.

Some companies have made specific announcements in line with the VDA's pointers, with Mercedes-Benz, for example, reducing this year's output to meet the anticipated downturn in the car market; a reduction in its present global workforce of 238,000 is considered "unavoidable," and the possibility of redundancies is not ruled out, depending on how the market develops. BMW has taken advantage of the surprise caused by these announcements to outline its own plan to cut around 3,000 of its 74,200 jobs by the end of 1992.

Adam Opel AG at Rüsselsheim also plans to reduce its 56,000-strong workforce by natural wastage by the end of the year. Following its reduction of its German workforce by 1,000 during 1991, Volkswagen, Germany's largest automobile manufacturer, is not planning any further job cuts this year, though the board is discussing a reduction in its global workforce of 266,000 by 10,000. Ford's action in cutting 200 to 300 nonproduction jobs at its Cologne plant in recent years continues in the form of not filling vacancies during 1992.

Employer representatives on supervisory boards obviously accept the need for concessions in the face of international competition. IG Metall's Wilhelm Herber admits that he and his colleagues on supervisory boards have so far agreed to a number of plans involving workforce reductions.

### Dassault Aviation 1991 Figures Show Decreased Profits

*VZSHEZMC Paris AFP SCIENCES in French 23 Jan 92 p 77*

[Article] "Dassault Aviation: 1991 Revenue Down 17 Percent."

[Text] Paris—Dassault Aviation's profits dropped approximately 17 percent in 1991, to around 14.1 billion francs (Fr), according to preliminary estimates released by the aircraft manufacturer's management on 16 January.

The receipt of new orders during the same period also dropped, down 25 percent, to approximately Fr12 billion. This decrease in orders was felt in both the civilian and military sectors, Dassault pointed out. Its 1991 net result is not yet known, but "it is expected to be on the positive side." Dassault's 1990 consolidated net profit was Fr174.2 million. That of the parent company was Fr218.2 million.

Asked about a possible restructuring of the aircraft industry in France, Dassault's management pointed out that Dassault has always favored "a medium-sized company with good technological performances over a chaotic conglomeration."

On the other hand, Mr. Serge Dassault, president of Dassault Aviation, recently proposed "an enhancing of the synergy that exists between Dassault Electronics and Thomson-BSA." The latter is Thomson-CSF's aircraft equipment branch. This proposal aims at forming two companies: One specializing in radars and headed by Thomson, and the other specializing in ECM (Electronic Counter Measures), in which Dassault Electronics would be the majority shareholder. These proposals, Dassault points out, were conveyed to Thomson-CSF's CEO and to the Defense Ministry, but, to date, have elicited no response.

### France Telecom Reports 1991 Profit Increase

*VZSHEZMA Paris AFP SCIENCES in French 23 Jan 92 p 78*

[Article entitled "France Telecom's 1991 Profit Estimated at 13 Billion Francs"]

[Text] Paris—As predicted, France Telecom should make a profit of 13 billion French francs (Fr) in 1991, on sales of



Fr115 billion. The figures were given by the company's CEO Marcel Roulet on 17 January. In 1990, France Telecom earned Fr200 million after state deductions.

Sales are up nearly 7 percent. This is especially due to the strong growth in corporate communications, which saw a 50 percent increase in faxes and a 12 percent increase in data transmission. Computer communications and radio telephony also grew sharply, up 20 percent and 28 percent respectively. The group is predicting that its business will grow at the same rate in 1992. France Telecom's debt, which comes to about Fr120 billion, is nearly stable.

The number of installed telephone lines grew by one million and now exceeds 29 million. The rate of network computerization is climbing steadily: 44 percent of the long-distance telephone circuits have gone digital. Moreover, the company's radio-telephone service Radiocom 2000 had 280,000 subscribers at the end of 1991 and covered 91 percent of the territory. The various radio paging services—Alphapage, Eurosignal, and Operacom—are growing and have a total of 278,000 subscribers, including 150,000 for Alphapage.

France Telecom has installed nearly four million cable connectors. It has launched the cable TV decoder Vnospin, which is based on the temporary European standard for high-definition television D2-MAC. Abroad, the public carrier has pursued its policy of investment, notably by acquiring the British company Transpac Network Services in the data-transmission field. France Telecom has teamed up with Ameritech to build and operate Poland's radio-telephone system. Finally, it has also signed an agreement with the company U.S. West to expand the Minnet.

#### Peugeot CEO Announces Automation Policy Change

JPRES/EST Paris (ROBOTS) in French 30 Jan 92 p.1

[Article entitled "Peugeot Citroen Corp. Simplifies Its Production Lines"]

[Text] Jacques Calvet, the president of Peugeot Citroen Corp., has decided to rethink his investment strategy by putting the brakes on automation. The manufacturer considers all-out robotization to be a thing of the past. Mr. Calvet's trip to Japan last October sealed a conviction that he had been nursing for months: Peugeot is sacrificed simplicity with its overcomplicated production lines that it demolished the profitability of its investments. His first concrete step was to halt interior revamping of the Sochaux plant shop that was under construction, in order to do another study. That act is the harbinger of others. The divergent assessments of Michelin and Peugeot can be explained by the differences in their products. Full robotization works better for a long-run product with a short production cycle, such as a tire, than for something as complex as an automobile. Beyond such considerations, however, an entire approach to competitiveness at stake with substantial social consequences.

"Despite our efforts, we have not progressed. Not for lack of hard work, but because our thinking was not consistent with our actions." This little remark from Jacques Calvet's

[holiday] wishes to his personnel, which were printed in the company's in-house magazine, announces the president's shift in investment strategy. After multiplying by 10 the number of robots operating in Peugeot and Citroen factories over the last 10 years—there are now 2,000 compared to 200 in 1982—the group has decreed a time out. Peugeot Corporation's management does not expect equipment to change much over the next few years. Chits tasks that are deemed hazardous to humans or that could boost quality will continue to be automated. Management mulled over the decision, which is meant to create a sparser production unit, free of the snags caused by overcomplication, all last year. At stake is the ability to curtail investment costs without cutting into plans to replace equipment. The policy will trim the investment budget of Peugeot's automobiles branch by 1 billion French francs (Fr) this year, lowering it from Fr14 billion to Fr13 billion. The trend will continue into 1992 and beyond.

Modernization of Peugeot's Sochaux site began in 1981 and has already cost the company Fr7 billion. It was one of the very first plants to test out the new strategy. Although Peugeot's managers could not touch the new body-assembly and lacquer shops, which are already finished, they did halt interior revamping of the foundations building, where the first coats of paint are applied to the bodies. This waste bust is just one element in the race for productivity that Jacques Calvet has gotten underway. In early September he announced that the company would restructure the respiratory research and methods management departments of Peugeot and Citroen. The goal is to reduce the time needed to bring out a model, which averages five years in France compared to three years in Japan.

#### ABB To Restructure

JPRES/EST Paris (USINE NOUVELLE) in French 23 Jan 92 p.16

[Article by Marc Neeson: "Asea Brown Boveri Taking Hold of Itself To Safeguard Its Position" first paragraph is L'USINE NOUVELLE introduction]

[Text] Divestment and job cutbacks are on the immediate agenda. Transport and energy production are still top performers. The other divisions are being closely watched. And the Swiss-Swedish group nurtures ambitions in France and Great Britain, as well as in Eastern Europe and Asia.

The Swiss-Swedish electrical giant has embarked on a course of rehabilitative therapy. Despite its explosive growth over the past four years, Asea Brown Boveri (ABB) is going to have to account itself again to navigating in rough waters. The firm's accounts for 1991 have sounded the alert. This March, for the first time in its history, ABB may have to announce zero growth in profits. More disturbing is the likelihood that this year its revenue (146 billion francs (Fr)) will shrink. This is all that was needed by Peter Barnevik, the firm's fiery head, to render order in his big house, which employs 215,000 people and owns or controls 1,300 companies.

On the menu are drastic economies, with a speeding up of divestments, and a cutting back of jobs. On both fronts, the initial measures have already been implemented. A few

weeks ago. ABB ended its Swiss stratum in other manufacturing plant to the U.S.'s General Signal Company. Prior to this, the group decided to divest itself of its Georgia Radio American activity, its Gertel company in Austria, and its stake in Germany's BHK Wirt company. Taken together, these activities were bringing Fm billion in revenue.

The reduction in staff is also proceeding at a lively pace. Approximately 12,000 persons left the firm last year, at the rate of 1,000 per month, and, according to the U.S.-based Goldman Sachs research firm, projections call for some 20,000 departures this year. In all, a blood-letting that is expected to improve the group's overall productivity by 5 percent.

Percy Barnević had a reputation as the champion streamliner of company headquarters staffs, having slashed those of all the group's subsidiaries, including cutbacks from 100 to 600 employees in the United States, from 100 to some 1,600 in Germany, and from 25 to 800 persons in Finland. But this time, the scalpel is poised over the productive structure, with lights centered on Norway, Finland, and Germany, where markets are shrinking, particularly in the energy distribution sector (medium- and low-voltage equipment).

#### 1992-1993, a Pause in Restructuring

In Norway and Finland, the group's plants will see their staffs cut by around 10 percent. Enough to slow the pace of ABB as available manpower and resources that, since its creation in 1917, has become progenitor of some 50 sister firms.

The sudden applying of the brake to external growth now means, with a budget cutback in this rubric from 16.4 billion to 1.7 billion (summary not specified), inaugurated as of then the firm's era of streamlining and restructuring. Percy Barnević had forewarned that 1992 and 1993 would mark the pause. The stakes are clear-cut. The safeguarding of the firm's prestigious positions in a substantial number of specialized fields.

Indeed, few groups can pride themselves on being, at one and the same time, world leader in transmission of electrical energy, and robotics, the world's number two in the production and distribution of energy, and transportation, and number three in industrial process control.

But the other side of the coin is that 50 percent of these activities are proving to be highly sensitive to the vagaries of economic trends. "During the 1992 operating year, all the group's divisions will experience a drop in profits, except for transports and energy production." This is the prediction of an analyst of the Evidencia Group.

Message received. The retaking of control over 4,500 ABB profit centers has begun. Fortunately, two activities are still breezing along with the wind in their sails. Transports, to whose entire line of products (high-speed trains, locomotives, signaling systems, 1 ABB is devoting substantial research and development outlays (10 percent of revenue), and energy production, which is being powered by the boom in the gas turbines market.

This major in-house shake-up is not preventing ABB from keeping a watchful eye on four geographic zones in which it must per force expand: Asia (currently only 15 percent of revenue), and Eastern Europe, where it has already acquired 23 companies, and France and Great Britain, which, beyond the shadow of a doubt, form large among Percy Barnević's forthcoming prey.

#### Interview With Sverlik

VW SEIT 1984 *Handelsblatt* HANDELSBLATT in German  
(7 Feb 92 p. 1)

[Article by Josef Hess: "There is Nothing Indecent About Minor Reforms"]

[Text] HANDELSBLATT 15-16 February 1992—The automobile industry throughout the world faces a "merciless" reformation (competition, especially at the hands of the Japanese). The situation is aggravated by the fact that the Far Eastern competitors need not adhere to any voluntary restraint in deliveries from their branches (transplants) in Europe and the United States. The production and cost efficiency, as well as the shorter developmental and product cycles of the Japanese (in a word, lean production) call for adaptability of strategy and operative buying in the procurement market. This has worldwide consequences, not just for the automobile producers, but for their suppliers as well. Werner Sverlik, who is responsible for procurement on the Volkswagen proprietary board, explained in an interview with HANDELSBLATT.

Sverlik is responsible for a VW procurement volume of about 25 billion German marks (DM), or 40 percent of the DM47 billion turnover proceeds. Furthermore, his department exerts influence on about 60 percent (about DM30 billion) of the DM177 billion procurement volume of the VW Company in Europe. Two years ago, according to Sverlik, VW developed a comprehensive purchasing strategy, and after a three-year preparatory phase it was adopted by the board. Presently, this strategy is being implemented with the participation of all employees. It consists of five principles: 1) structuring and optimizing supplier relations, 2) intensifying cooperation at the company level, 3) improving system support, 4) promoting personal development, and 5) building up a central employment marketing system.

According to Josef Hess, Sverlik, VW hopes, with these measures, to reduce development times and costs, as well as contribute to a general improvement in business results. To be sure, the general tendency to reduce production depth (it would be better to speak of "rationalization"), in the case of automobile producers means that a higher fraction of the net product must go to the suppliers. In this way, the suppliers, within the "cooperation between partners" framework, are drawn increasingly into the decision-making processes and therefore more deeply into responsibility sharing.

The suppliers view this partnership with mixed feelings. For some years now, they have all been complaining quite generally, and not just with respect to VW, that they have had to accept unattractive price reductions of, for example, up to 5 percent in long-term contracts for parts in some. In addition, there are cases in which the producers completely



extends his own parts capacity, while the pressure in the division of market fluctuations have to be covered by the suppliers. The suppliers are also obliged to lay open their production costs (the "glass peaks" principle). Moreover, the automobile producers can play competitors off against each other.

To this, Swetlik responds: "We are naturally conducting price talks in which we are emphasizing the potential for individual cost reductions. The results have to help both partners, even if we have minus price rounds. Suppliers are not being played off against each other. Our procurement price analysis supports that purchasing strategy as do VW's other business areas. It comes down to the lowest price. It sounds better when there is some compensation, than when I am stuck with just one supplier."

The chief VW buyer alludes here to certain large supplier companies (a classic example is Bosch) which, because of their innovative potential, enjoy a quasi-monopoly status. But even such monopolies, Swetlik believes, would be well advised to conduct sensible price policies, because they are clearly that they will not be able to keep their monopolistic positions forever.

#### Cost Reduction Potential on Both Sides

When suppliers complain about occasional minus rounds (see interviews with the presidents of Gysammetall, Garmisch, in the 6-7 December 1991 issue), then they must be told that every business has to undergo a certain period of rationalization efforts, which can partially be reflected in prices. VW itself has set a rationalization requirement of 4 percent per year. Swetlik sees "nothing inherent" in minus rounds in these situations, the supplier just does not have a price reduction thrust at times of his fate. More often, the cost structure and the cost reduction potential on both sides is analyzed together and in a partner relationship.

In practice, this can happen as described below. The VW specialists, together with the employees of the suppliers, do some "brainstorming" about a supplier part or a parts group. In this process, the problems get into input work, i.e. parts frequency, parts variety, etc. In the end, the supplier might argue: "If, out of an original five parts, VW can make three, and if these parts need but one admirable minus round, they make us all stronger."

#### Free Competition in European Suppliers

In dividing the total requirement for products and suppliers, Swetlik sees no danger for the latter: "Of course, it can't be that the supplier only gets supplied, not five times a day, but once a week, and if a certain part can be changed just slightly to make it more production-friendly, then we could meet VW at the price." (After very powerful warnings emerge from these talks for VW's chief buyer: "Then contract, be unknown and irrefutable proof. And the supplier is million enough to say yes or no to an order. Many suppliers deliver to other producers as well, and could not cover VW's low requirements in any case. When, for example, a supplier sends orders for the last 10 percent of an open die casting machine, which are already 80 percent sold to other also at a very favorable price.

If course, there are always new market opportunities that are taken advantage of. When, for example, the volume markets of our European neighbors had had enormous sales losses in 1991, VW could more than get compensated for by the total German business. The automobile suppliers in neighboring European countries had gained free capacity by virtue of the economic situation and VW made favorable offers. The same is true for North America, where suppliers are under sales pressure and, for example, made favorable bids for the delivery of parts for the Golf III, which will also be made in the Mexican VW plant from mid-1992.

Despite "global sourcing," which has been practiced for some time now, Swetlik notes that at least 80 percent of VW suppliers are still long-term suppliers. To be sure, global sourcing does not necessarily mean to replace domestic suppliers with foreign suppliers, just because of lower prices, when they are not truly replaceable. At one time, for example, VW grabbed the initiative and stuck with the German ball-bearing industry, when the lights threatened to go out in Schweinfurt. The automobile industry is not served by procuring roller bearings from abroad, which are of the most common type and available in great numbers, while the required "high-end variety" had not yet even been offered.

The VW buyer Swetlik emphasizes that parts could not possibly be obtained from abroad with a strategy of system type construction, "just-in-time" delivery and the belief in the advantages of new plants. What is needed is an innovative partner, "who can move with us in the right direction. Since our suppliers are linked closely with us in the development of a model and its parts right from the start, and have to take over much of the developmental work without the framework of simultaneous engineering, I just don't go out and fetch the first developer of a part from the Far East." Nor has VW ever continued its suppliers with frequent price offers.

The great benefit that simultaneous engineering—the joint development of a model and all its modules together with its suppliers, process—is demonstrated by the fact that VW is presently in the final phase of planning a technology center that has been built almost exclusively for simultaneous engineering. In the center, VW developers and designers from R&D together with buyers, controllers, production and quality specialists, as well as representatives of the suppliers will work together on the drawing boards and computers.

VW relies primarily on domestic or European sources for system suppliers. For 85 percent on values of all parts, VW in Wolfsburg has one supplier per part (single sourcing). In the case of production stock, about 1,100 suppliers are together to deliver about 11,000 parts positions. The number of suppliers is to be reduced further, especially since the Wolfsburg manufacturers in future will be using even more complete component assemblies or modules than before from a single supplier, who in turn is serviced by several sub-suppliers (modular sourcing).

The preference from procuring single parts is compared systems thinking and aspect of the logistics position. Nevertheless, it remains a very complicated logistical problem to

implement the "just-in-time" philosophy when producing 4,000 vehicles a day in Wolfsburg alone. "We don't keep some 40,000 tires in stock, together with the usual small and standard parts like washers," Svoboda says. However, simply because of organizational reasons, not every supplier is able to keep his parts arriving on a conveyor belt. VW wants to have external storage sites and depots that can be filled or be rail deliveries during the nighttime. From these depots and storage sites, the plant production lines can be serviced on schedule. Svoboda, for example, has been negotiating with the German Federal Railway for a supply depot in a switching yard in nearby Fallersleben.

The VW never sees a substantial savings potential in still closer company ties with Audi, Seat and Skoda. In future models, more interchangeable parts than ever will be used. The replacement of these parts would, to a great extent, be the responsibility of VW.

### UK: ICL's Success Strategy Described

ICL Success Plans 1. (CITEC '90) (CLL) (Lond.)  
1 Apr 92 p 4.

(Article entitled, "ICL's Recipe for Success," first paragraph is ICL/STC NEWELL introduction.)

(Text) Product standardization, market specialization, and a strong commitment to services explain the British firm's success.

ICL's 1991 earnings will not be out until March, but it is already known they will be positive. While users at Bull and Siemens-Nixdorf lost almost systems, and Olivetti is once again in the red, ICL will be enjoying its 10th profitable year in a row. The recipe for that kind of success contains three ingredients: a realistic market niche strategy, an ability to adjust to market standards, and the awareness that services is gradually replacing hardware as a source of profits. ICL had a turnover of nearly 11 billion French francs (FF), which ranks it among the industry's medium-weight companies in Bull's FF13 billion. Consequently, the company quickly realized that it could not do everything, and decided to focus on selected niches. Today a quarter of its sales are made in large orders, where it now ranks third internationally, after IBM and NCR. Administration, the accounts for a large share of its business, is its forte.

That strong specialization, comments Ian Dwyer, who is an analyst at Dataquest, "made it easier for ICL to concentrate on software and services." With 6 percent, and next 10 percent, of its sales generated by "non-material products" compared to 25 percent for IBM and 11 percent for DEC, the British group holds the third for non-hardware computer sales.

The third reason for ICL's success is its integration toward market standards, and particularly Unix, which it supported back in 1984. The Unix operating system accounts for a third of its sales, or, according to Dataquest, 25 to 35 percent of the European market for multi-user Unix systems. That share is three times higher than Bull's.

The Japanese giant Fujitsu took over ICL as a subsidiary in mid-1990, and the British company has managed to find the alliance balanced. "They are far ahead of us when it

comes to Unix systems and have a great deal to teach us," acknowledges Takuma Yamamoto, who is the president of the Japanese group.

Actually, although ICL depends on its hefty partner to supply its large systems, Fujitsu is distributing the British firm's work stations and minicomputers.

The tension between the two has a direct consequence: ICL, aware Peter Bullfield, its president, remains wholly free to maneuver on strategy. The takeover of Nixdorf's computer business, for instance, was initiated by ICL. The question is whether the creation is a lasting one, or just a honeymoon, for any event, officials at Fujitsu are already talking about focusing the synergy between the two partners.

### Daimler-Benz To Compete Against SGS-Thomson in Electronics

ICL Success Plans 1. (CITEC '90) (CLL) (Lond.)  
1 Apr 92 p 10.

(Article by Klaus Kuhn, "Thomson-Benz to Surge for Its Components Business.")

(Text) With the drop in western business and the slump in the automobile industry, Daimler-Benz wants to step up its diversification in electronics. To improve its chances, the big German manufacturing group has decided to create a new computer unit of the combined microelectronics divisions of its AGO and Deutsche Aerospace (DASA) subunit.

The new company has temporarily been named Mikroelektronik Gesellschaft mbH, and will be capitalized at 500 million Deutsch marks (DM) or about 1 billion French francs (FF). AGO and DASA will hold equal shares. The company will employ about 15,000 workers and will enter the sales of DM2.8 billion this year. The company should show losses of DM100 million in the first fiscal year but expects to show a profit in 1993.

Mikroelektronik Gesellschaft plans to sell a maximum of 20 percent of its production within the Daimler-Benz group. The company will invest DM1.5 billion in production between now and 1994, and DM1.7 billion in research and development.

Teufelberg Electronic GmbH (TEL), which owns 50 percent of the electronic components company MIRA mbH, will be the head of the new firm. DASA is bringing business in "customized chips" (ASIC) or application-specific integrated circuits made by Mikroelektronik-Buchloe-Werke GmbH (MBW), and Thomson's sales distribution.

The new microelectronics alliance adds to Germany's weight in semiconductor components, where it already enjoys a strong position, especially with Bosch. Especially so, according to Mr. Peter Koenig, who is the president of Mercedes-Benz, the new group is made to make acquisitions. "I suspect that in the strategy of the MIRA group, which is trying to do most of its 50 percent holdings in the 11 firms plus computer companies. The interest is especially interesting given that Daimler-Benz and MIRA are linked financially. Daimler-Benz holds a 4 percent of MIRA's capital and industrially comparable or equal subsidiaries in many ways.

If the two groups did do business together, the agreement could have many repercussions. Ufima is a large purchaser of Thomson-IBM ASM components—the "customized" components that are also the specialty of TEG. Matsa affirms that it is not negotiating on this point with Daumier even though Daumier-Breiz has already shown an interest in Ufima.

### Philips' Restructuring Promises Profits

CBN/Solent Paris LE MENDEL in French  
25 Feb 92 pp.17-18

[Article by Amsterdam correspondent Christian Chartier "Philips Counterattacks" first paragraph is LE MENDEL introduction]

[Text] After a torrid 1991 slide, the Eindhoven multimedia finally went back on the offensive in 1991. Any prognosis of a lasting recovery, however, would be risk.

The recovery plan that Philips President Jan Timmer has been implementing since 2 July 1990 under the fighting name of Centuron has three objectives. They are: To strengthen and the company's brands, the company's business portfolio, and the company's revenues. The 1991 fiscal year earnings that the Eindhoven group will present Thursday, 27 February will clearly indicate for the first time what some of its efforts have been.

The main objective (consolidation of Centuron) will fall under the heading of "Presented." At the start of the slump on 11 March 1990 the multinational employed 24,000 people, since then, thousands have had to resign their desks and Philips should have a staff of fewer than 20,000, as planned.

The 1991 profit and loss account is also expected to bear Centuron's undeniable stamp. It is likely to show a profit again, after losses over 1990 have hit the full financial year nearly 14 billion French francs (Ffr) of the company's restructuring. Moreover, the sale of Philips remaining interests in its joint venture with Whirlpool to make large household appliances has already earned the company a windfall of Ffr 19 billion. But the most telling element will be the net operating income (or loss) of the different product groups. The two sectors—consumer and professional electronics—that were gangbusters in 1990 should be recovering following anticipation (see LE MENDEL's September 1990). Philips sold the greater part of its semiconductor and computer operations to Digital Equipment Corporation.

### More Bodies To Be Handed Off?

Jan Timmer would have something to be glad about if the two growth sectors, lighting and consumer electronics, were not also showing encouraging signs of weakness. Those operating income has been down for the year's first three quarters. The situation is so bad that the trade unions of Philips-Netherlands have been warning of what they claim is an imminent new "body count." Management describes itself warning as "speculative" and "premature," but that has apparently not reassured anyone yet.

Moreover, it is still difficult to assess the general purchasing will impact of the plan. The Centuron "lean and mean"

regimen was implemented in two stages. The first involved staff cutbacks, and the second re-education of the company's management, which was regarded as unaccountable and bureaucratic. The master businessman Timmer recently described himself as "pleasantly surprised by the speed" at which his cultural revolution was progressing.

In any event, 1991 showed a Philips that had gone back on the offensive. Last October the Dutch group announced it would build a high-capacity current plant in Eindhoven for French million. It was the first large production investment Philips had decided to make in 18 months. Philips took over the French lighting manufacturer Poliam Pils last LE MENDEL 12 March 1991 and announced an interest in buying the at his lighting division of the American firm QTE, which would cost about \$1.5 billion.

But the most spectacular changes have occurred in consumer electronics, where Philips has announced software goals that are both dramatic and first.

The company's interactive compact disk will soon compete in battles to live in the European market. When Philips launched the disk in the American market, it signed agreements with the world's top producers of video games, Novarra, and the world's top language schools. Better part of the last Maxwell company, Philips' recent acquisition of 25 percent of White Communications' work, which cost a Ffr 1 billion, will allow it to work with Time Warner in the core industries of multimedia products.

The company has positioned the market launch of the digital cassette player (DCC) which the group considers the product of the future along with high-definition television. The delay is said to be due both to mass-production problems and to Eindhoven's decision to make sure there are enough manuals were available in DCC (the fact were its Poligram subsidiary should play an important role as it did in the success of the VCI. For Poligram is not alone in clearing up its position in movie production, in which it will invest Ffr 2 billion.

Finally, Philips has received over Ffr 7 billion over the last few months in video-cassette rental chains in the United States, Belgium (Super V) and which it now controls, United Kingdom (Cinevision) and the Netherlands (Videoland). Will this network of outlets eventually be used to market all the home's audiovisual devices and programs? Perhaps on Thursday Jan Timmer will place the movie in the context of a comprehensive but still fairly industrial strategy.

### Germany Machine-Tool Firms Restructure

CBN/Solent Paris L'ESPRESSO MONTPELLIER in French  
27 Feb 92 p. 16

[Article by Fabio Raposo: "Hard Times for the German Machine-Tool Industry" first paragraph is L'ESPRESSO MONTPELLIER introduction]

[Text] First, the worldwide equipment sales slumped, and secondly, the German MMR collapsed. The industry is restructuring just before new growth.

Sales are down 10 percent at Mahr just the company has eliminated 100 jobs. The Tschumpert company, which has





[Text] The Twelve's foreign affairs ministers met Monday, 17 February in Lisbon, and approved a German, American, and Russian initiative to prevent nuclear arms from proliferating through a brain drain of ex-Soviet Union experts. The EC is willing to co-finance the plan.

The ministers spent all of Monday morning discussing the situation in the former Soviet Union. They supported a proposal of their German colleague, Hans Dietrich Genscher, to prevent the exodus of specialized nuclear scientists and researchers, who have been thrown out of work. Mr. Genscher's plan aims to keep them from offering their expertise to countries wishing to acquire nuclear weapons.

Mr. Genscher was the spokesman in Lisbon for a German-Russian-American proposal that was being presented at the same time in Moscow. It would create an international science and technology center to lure the CTS's 3,000 or so nuclear scientists capable of making an atomic bomb.

The center will be responsible for "developing, selecting, funding, and inspecting" disarmament projects and projects to convert the ex-USSR's military industry to peaceful uses. The center will pay the experts a monthly salary of at least \$1,000. That sum is considered dissuasive enough to steer them clear of the attractive offers certain countries are making them. The EC is prepared to co-finance the project, whose cost is initially estimated at \$100 million. The EC will contribute up to ECU50 million, or \$65 million.

The Twelve also considered the question of aid to the former USSR republics, and mentioned a second conference on the topic that is being prepared for May, following Washington's. In addition to all the states that attended in Washington, the EC would like to invite all CIS states and the Baltic republics.

#### Differences of Opinion on Yugoslavia

The Twelve focused on the situation in Yugoslavia for quite some time. According to the Portuguese foreign affairs minister, Joao de Deus Pinheiro, it triggered an "intense debate." France, Great Britain, Italy, and Greece favored an immediate lifting of the sanctions that were imposed on Serbia last year, in response to Belgrade's acceptance of the UN peace plan. However, other member states succeeded in getting the measure postponed. In the text that was adopted in Lisbon, the ministers state that they have noted "with satisfaction the constructive attitude" of Serbia. They promise to "take it into account" in revising their stance on sanctions.

The Twelve also decided to support the request of Bosnia-Herzegovina for international observers to monitor its referendum on independence scheduled for 29 February. Mr. Deus Pinheiro will meet with the president of the European Parliament on Wednesday, to ask him to select parties for the job. Each of the member states will present a similar request to its national Parliament.

The Twelve examined the thorny question of whether to recognize Macedonia, but decided that it could not be settled immediately. The hostility of Greece, which fears the republic has territorial designs on its province of the same name, is unabated. The name Macedonia does not even appear in the joint statement. Mr. Deus Pinheiro stressed

the Twelve's desire to "dedramatize" the problem. He added that, as acting president of the EC, his colleagues had asked him to work on it "with the utmost discretion."

The Twelve also reaffirmed their support of the UN peace-keeping force in Yugoslavia. The security council is expected to state its position on the force this week.

#### Intervening in the Near East

On the question of the Near East, the ministers asked that all "parties refrain from any action that would imperil the peace negotiations" now underway, "including pursuit of the current policy of establishing Jewish settlements in the territories occupied by Israel." They supported a suggestion by France that the EC co-organize the working groups of the multilateral negotiations in Moscow, particularly the group on arms control and regional security.

Mr. Roland Dumas deemed the EC's "exclusion" from that group's copresidency "abnormal," since Europe, he said, is directly concerned by developments in the Near East. The Twelve also came out in favor of a "system that would allow greater Palestinian participation" in the current discussions.

Spain was assigned to think about how Europe could mend its dialogue with the Arab states. After evoking Algeria, the Twelve expressed the desire to "resume contact with Morocco," to use Mr. Roland Dumas's expression. The EC would like to study the possibility of establishing a free-trade agreement with that North African country, after a decision of the European Parliament to run a Fr363 million financial protocol earmarked for it.

#### France: International Foundation To Aid CIS Researchers Proposed

92WS03894 Paris LE MONDE in French 3 Mar 92 p 13

[Text] Research and Technology Minister Hubert Curien reiterated France's willingness to help prevent a drain of the CTS's science and technology workers during a meeting with Russia's new ambassador to France, Yuri Rykov. The minister noted that economic difficulties and the industrial switchover from high-tech to common products threatened research in the CTS. Ultimately, there is a risk that unique research fields and installations, where original approaches were developed, will disappear.

The Rakhia initiative, which is named after the Nobel physics prize winner, will create an international foundation to help CTS researchers. Combined with efforts proposed by Messrs. Baker, Genscher, and Korynev to convert the CTS's military-industrial potential, it may provide a partial solution to the problem. The EC's council of ministers is expected to decide its position on the matter during a 2 March meeting.

#### EUROPE-ASIA RELATIONS

##### Italian, Chinese Aeronautics Joint Venture Established

92MD0771 Rome AIR PRESS in Italian 5 Feb 92 p 223

[Text] Alenia of the IRI Finmeccanica [Institute for the Reconstruction of Industry—Mechanical Engineering Finance Corporation] group has founded the Italian-Chinese company Saphire in Beijing along with the Chinese industrial Group RIIA and Dragon Base Investment Ltd. of Hong Kong. An

Alenia press release dated 23 January reads as follows: "Saphire, whose Chinese name is Lan Bao Shi, will operate primarily in the field of data processing and display systems."

Initially designed to supply maintenance services for air traffic control systems, this joint venture will transfer state-of-the-art air traffic control technology to China and will provide systems, carry out installation, and set up services as well as providing after sales assistance. "Saphire also offers," the Alenia press release continues, "local businesses an opportunity to participate in the construction, assembly, and integration of Alenia components."

The release further states: "The founding of Saphire opens up a new phase in Alenia's relations with China, where it is currently installing 13 air traffic control systems in the south-east of the country."

In addition to the three systems already in operation, a secondary radar for Shenzhen airport, located 30 kilometers from Hong Kong, and a conventional secondary radar for Tianjin airport, Beijing's second airport, will be completed by the end of 1992.

In 1989, Alenia was assigned a Civil Aviation of China contract for the supply and installation of 11 radar systems in Beijing, Shanghai, Changsha, Hefei, Fuzhou, Taiyuan, Enshi, Shenyang, Chongqing, Guangzhou, and Sanya. This network will enable China to have almost complete radar coverage of the eastern part of the country. Alenia will complete the installation of the primary and secondary radar systems and related control centers by the second half of 1992. Three systems, among them the secondary radar system at Beijing's Capital Airport, were installed a few months ago and are now fully operational."

#### **Radars for Chinese Air Traffic Control**

A second contract for a secondary radar for Shenzhen airport, signed a year ago, is currently being completed 30 kilometers from Hong Kong. The radar system, which is now installed, will be completed by the end of January 1992. Another contract, signed in November 1991, concerns the supply of a conventional secondary radar for Tianjin airport. The radar system will be installed in 1992.

These three contracts represent an important recognition for Alenia at a time when competition among the main international companies in the sector is intense. An interest in the Chinese market is demonstrated by the 1990-95 air traffic control tailored project concerning the completion of a program to upgrade air traffic control infrastructures.

The program is considered to be of fundamental importance for the country's development, and has led the Civil Aviation authority to make two more calls for bids by the end of the year for the supply of new radar systems and air navigation equipment."

#### **Thomson-LCC, Japan's Murata To Collaborate**

92WS0111A Paris L'USINE NOUVELLE in French  
16 Jan 92 p 19

[Article by Jean-Pierre Jolivet: "Thomson-LCC Restructuring Its Industrial Production Facilities", first paragraph in L'USINE NOUVELLE introduction]

[Text] The Marly (Nord) Plant is shutting down its activities. The race for productivity gains may not suffice to rescue the French manufacturing plants.

Passive components will not escape the industrial productivity drive that Thomson-CSF has undertaken. The Thomson-LCC plant at Marly (Nord) is going to shut down its last low-voltage varistor production line, entailing the elimination of 63 jobs. The decision follows the halting of production of tantalum capacitors and medium-voltage varistors, which was ceded to ABB [Asea Brown Boveri], and will probably mean the shutting down of the site. The plant is an ultramodern manufacturing facility inaugurated in 1987, that probably cost more than 430 million francs (Fr), and that never reached its planned level of 600 jobs.

Like most European manufacturers of passive components, Thomson-LCC is having to resolve problems that are dangerously multiplying. In 1991, the revenue of French manufacturers shrank 5 percent, thus perpetuating its meager performance over the preceding years (an overall growth of 8.2 percent in 10 years, versus 11.6 percent for electronics as a whole). Thomson-LCC has been no exception in this regard, with a stagnation of its sales at the level of around Fr1 billion in 1990—a year that also ended in a loss of Fr174 million.

#### **Market Shares Too Small**

The deteriorating situation has induced the group's management to speed up its drive for productivity gains. With its 3,000 employees and nine plants worldwide, including four in France, Thomson-LCC is handicapped by an industrial structure that has steadily grown less suited to the constraints of the marketplace. "In this context, the management is having to think in terms of the ratio of capacitors per employee. In view of hourly costs six to seven times lower in Malaysia, we are very apprehensive as to the future of French plants," says an official of the company's union. The production of tantalum capacitors has already been transferred from Marly to Penang (Malaysia).

This restructuring of its French plants falls far short of resolving the company's major problem: Market shares that are too small, especially in the wake of the offensive being waged on the Old Continent by the Japanese giants (Matsushita, Kyocera, Murata, and TDK). In ceramic capacitors (65 percent of the market by volume), the French are in 17th place worldwide, with 2 percent of the market, and are dwarfed by Murata (25 percent) and Kyocera (20 percent). Under these conditions, it is difficult to finance research and development costs that currently run close to those of semiconductors! Thus it is that Thomson-LCC has chosen to ally itself with Murata. It will list the Japanese firm's ceramic capacitors in its catalog and develop new technologies together with Murata. In all likelihood, the collaboration will expand—and produce another reduction of industrial sites in France.

#### **Sumitomo Buys Share in French Automation Software Firm**

92WS0111B Paris L'USINE NOUVELLE in French  
16 Jan 92 p 28

[Article: "Sumitomo Acquires 15-Percent Stake in Cosigraph"]



[Text] Japan's Sumitomo group has acquired 15 percent of Cisgraph, designer of the Strim 100 CAD/CAM [Computer-Aided Design and Manufacturing] software. The operation involves a reconfiguration of Cisgraph's capital structure. The 15 percent acquired by Sumitomo was ceded by BMW, which until then had controlled 46.5 percent of Cisgraph, equaling the stake held by the firm's personnel. Another 5 percent is held by the CEA [Atomic Energy Commission], and the remaining 2 percent by Aerospatiale. Sumitomo, through its subsidiary Sumitomo Electronics, has been Cisgraph's distributor in Japan since 1990. The Viroilles-based firm had revenues totaling 100 million francs (Fr) in 1991, of which Fr90 million came from exports. It now expects to double its sales in Japan. These have totaled Fr25 million in 18 months. Following IBM's entry into the capital structure of Dassault Systemes (designer of the CATIA CAD/CAM software), and the distribution agreement between Matra Datavision and NEC, this is the third large-scale agreement between a major French CAD/CAM leader and a world-class foreign group. It represents another step in the ongoing restructuring of the CAD/CAM sector.

#### France's Atomic Energy Agency Creates Japanese Subsidiary

92WS0341B Paris AFP SCIENCES in French  
30 Jan 92 p 30

[Text] Paris—France's COGEMA [General Nuclear Materials Company] group, a CEA [Atomic Energy Commission] subsidiary, announced in a press release on 27 January, that it has created, in Tokyo and with effect from 6 January, a subsidiary under Japanese law, the COGEMA JAPAN COMPANY. The new company will be headed by Mr Arthur de Montalembert. Since 1984, COGEMA has maintained a liaison office responsible for "facilitating the group's relations with its customers, and in particular with the nine Japanese private electric power companies and Japan's governmental authorities."

The transformation of its liaison office into a subsidiary company—says COGEMA—reflects "the increase in the number of tasks being entrusted to this local establishment, particularly on behalf of the different subsidiaries of the group," which "occupies first place in the world nuclear-fuel-cycle products and services market." A third of COGEMA's annual revenue—21.5 billion francs in 1991—is realized abroad. Its top customer is Japan, to which it sells mainly uranium and nuclear engineering services.

#### German Trade Minister Urges Cooperation With Japan

92M0366 Bonn DIE WELT in German 18 Mar 92 p 16

[Text] Federal Economics Minister Juergen Moellermann of the FDP [Free Democratic Party] has called on German businessmen to respond to the "Japanese challenge" through international joint ventures and partnerships with Japanese

firms. Addressing around 400 German and Japanese managers at a forum on Japan in Stuttgart on Tuesday, he said, "I place my hopes in cooperation, rather than confrontation."

Japan's Deputy Minister of Trade and Industry, Masahiro Koga, also pleaded for close collaboration between companies in the two countries. Germany and Japan were leading technological countries, he stated, and could therefore take on a leading role in international joint research. The president of the German Chamber of Industry and Trade (DIHT), Hans Peter Stuhl, said that it was not enough for Europeans and Americans to accuse Japanese behavior alone of causing the imbalance in trade and investment flow. The West should pay more attention to endemic reasons for its competitive disadvantages. The only answer was to "show an increased presence in Japan and Asia."

#### Japan Reduces Computer Chip Exports to Europe, EC Increases Production

92WS0414C Dusseldorf VDI NACHRICHTEN  
in German 21 Feb 92 p 26

[Article by M.G. "Multiple-Body Dynamics Shortens Development Time: Simulation Software Runs on Bargain-Price Personal Computers"]

[Text] VDI-N, Berlin, 21 Feb 92—The time required for experiments involving product development can be reduced with computer simulations and errors can be spotted and eliminated at an early stage. For problems involved in kinetic and dynamic analyses, multiple-body simulation systems (MBS) that provide evidence on movements and loads, for example, are increasingly being used. Up to now, the drawback of this software was that it could only be used with powerful computers that are employed by large firms.

A remedy for this situation is now promised by MBS software that was jointly developed by one of the Volkswagen subsidiaries, VW GEDAS, in Berlin and IMECH, the Institute for Mechanics in Chemnitz, since it makes it possible to run high-quality simulation software on bargain-priced personal computers and work stations as well. Dubbed "Alaska," this software makes use of a special kind of formal logic so that multiple-body dynamics problems involving combined mechanical and nonmechanical elements are also solvable. So, for instance, an electromechanics problem can be portrayed as a unit without the hitherto usual separation into the electrical and mechanical parts of the system being necessary.

Along with areas of technical application, vehicle construction, for example, the product is already being employed in biomechanics, high-performance sports, or crash mechanics. All the results of a simulation can be represented in the form of tables and worked up in vivid graphics or animation. The developers have taken into account the most important standards so that the modular software can be easily applied to different kinds of computers and integrated into available systems. VW GEDAS will demonstrate how "Alaska" works to interested parties at the CeBIT (annual trade fair in Hannover) exposition.

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